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XI. *Experiments for ascertaining the Velocity of Sound, at Madras in the East Indies.* By JOHN GOLDINGHAM, Esq. F. R. S.

Read February 20, 1823.

THE manner in which sound is conveyed, and the theory of its velocity, are too well known, and are to be found in too many scientific works, to need detailed repetition here. The actual rate of its motion, particularly in different states of the atmosphere, does not appear, however, to have been so well agreed upon by Philosophers. A scientific writer* in a standard work, states “That some of the most eminent philosophers, judging that the knowledge of the flight of sound might be of use on various occasions, have been at extraordinary pains and expense to measure the rate at which it moved; and the result of their experiments, particularly of those which were best conducted, is as follows :

1. “That the velocity of sound is the same, whether by sea or by land, in dry or in rainy weather, by day or by night, in winter or summer.

2. “That sound, whether more or less strong, flies with the same swiftness. For, by experiments, a cannon fired with a half-pound charge of powder was heard at about the distance of seventeen miles and a half in the same time after the flash was seen, as it was when fired with a charge of 6lbs.

* ROBERTSON.

3. "That the times in which sound is heard are proportional to the distance; that is, at a double distance it is heard in twice the time; at a triple distance in thrice the time," &c.

This, however, is not supported in *all* points by the experiments I am about to detail; nor indeed could we expect it would be, from the manner in which sound is conveyed; as this leads us to the conclusion, that the more dense, and the less elastic, the atmosphere, the slower sound would travel.

The velocity of sound has been variously given by different philosophers, as the following table,* originally from the Philosophical Transactions, will tend to show.

	Pedes.	
D. Is. Newton, Eq. Aur.	968	Prin. Ph. Nat. Math. L. 2 Prop. 50.
Nobilis D. Roberts - -	1300	Philos. Transact. No. 209.
Nobilis D. Boyle - -	1200	Essay of Languid Motion, p. 24.
D. Walker - - - -	1338	Philos. Transact. No. 247.
Mersennus - - - -	1474	Balistic Prop. 39.
D. Flamsteed and Halley	1142	
Florentini celebres - -	1148	Exp. per Acad. del Cimea p. 141.
Galli celebres - - -	1172	Du Hamel Hist. Acad. Reg.

To these may be added the following results of more modern experiments and calculations.

In Chili the thermometer 73,5, barometer 27,44 in. sound was found to travel 1227 feet in a second. By Mr. MILLINGTON 1130 feet.

Mr. RICHARD VAN REES has shown theoretically that the velocity of sound in common air is 341,54 metres in a second.

Mr. BENGENBERG at Dusseldorf, by experiment, 333,7 metres, about 2 feet and a half more, it is stated, than the velocity obtained at Paris by experiment.

* Being a portion of a dissertation by Mr. DERHAM, who, if I recollect right, makes the velocity the same as FLAMSTEED and HALLEY.

A metre, according to the accurate investigations lately made in England, contains 39,37079 English inches, and therefore 341,54 metres will be equal to 1120, and 333,7 to 1094,8 English feet.

“ Some curious experiments were made relative to sound by MESSRS. DE THURY, MARALDI, and DE LA CAILLE, upon a line 14636 fathoms in length, having the tower of Mount Lheri at one end, and the pyramid of Montmartre at the other extremity, their Observatory was placed between the two objects. The result of their observations was, that sound moves 173 French* fathoms in a second when the air is calm. 2. That sound moves with the same degree of swiftness whether it is strong or weak, an explosion of half a pound of powder discharged in a box, having been heard in the same space of time, as the report of a great gun charged with nearly six pounds of powder. 3. That the motion of sound is uniform, its velocity neither accelerating nor diminishing through the whole course of its progress. 4. That sound travelled at the same rate, whether the gun be pointed perpendicular to the horizon, or *towards* the person who hears the report, or *from* him — by other experiments however, the progress of sound appeared to be impeded by a strong wind.” Dr. G. GREGORY, *Econ. of Nat.*

The velocity in the foregoing table, stated to be Sir ISAAC NEWTON's, does not agree with that given by himself, which is 979 feet ; this however is not deduced from experiment, but from the theory, no regard being had to the thickness of the solid particles of air, through which sound is propagated. This being allowed for, according to the formula,

* Or $1106\frac{1}{4}$ English feet.

brings out the velocity of sound greater in the proportion of ten to nine, or 109 feet more, making the velocity 1088 feet ; besides, vapours are dispersed through the air, which being of a different tone and elasticity, do not partake of the motion of the true air, by which sound is propagated ; and it is also demonstrated, that the motion of sound will be quicker in such an atmosphere than in an atmosphere of true air, in the ratio of twenty-one to twenty ; then the velocity last found being augmented in that proportion, we shall have 1142 feet for the velocity of sound in a second, according to Sir ISAAC NEWTON's theory.

LA PLACE, using the Newtonian formula, which he considers correct, and a theorem which he gives, makes the velocity of sound in a second 345,35 metres (or 1133,06 feet English) the temperature being 43° . The French Academicians, as before mentioned, found the velocity 337,18 metres, or $1106\frac{1}{4}$ feet English. By experiments of LACAILLE the velocity was 344,42 metres, 1130,1 feet English, but the temperature is not mentioned.

In the above enumeration of the velocity of sound, given by different philosophers, very considerable discordances are observable ; the actual reason of which cannot, I imagine, be discovered without the details of the experiments, and these are not in my possession ; but probably, a particular examination of the experiments I am about to submit, may furnish a clue for the discovery of the cause of these differences. HALLEY and FLAMSTEED are the only two, whose results agree with the theory ; but I am not quite certain whether their results were deduced from theory or experiment. Be this as it may, the conclusion drawn from the experiments

made here agrees, in a very satisfactory manner, with that given by Sir ISAAC NEWTON's theory, and by the two other celebrated men just named.

Between the years 1793 and 1796 a considerable number of observations were taken by myself, and under my superintendence, at the Observatory, with the view of ascertaining the velocity of sound. Not having the exact distances of the guns from the station when I returned to England, I wrote for farther information upon the subject—which I had not obtained when I quitted Europe again. I therefore did not bring these experiments forward at the time; and having a more elevated station to observe from, by the erection of a new building, and the advantage of corroborating distances, by the trigonometrical survey carrying on under the superintendence of Colonel LAMBTON, I entered upon the course of experiments about to be detailed. The former experiments (those of 1793 and 1796) were made with ARNOLD's chronometers, as were these now given. In examining works obtained from libraries here, since I closed these experiments, for information relative to the results of like experiments by other observers, I found a letter from Colonel BEAUFOY, in the *Annals of Philosophy*, addressed a few years ago to Dr. THOMSON; and recommending to be done in England, what, in all the essential points, has been performed here, as will appear by the following extract:

“ It has frequently excited my surprise, as well as regret, and in which I am no wise singular, that use has not been made of the admirable Trigonometrical Survey, begun by the late General ROY, and continued with so much ability and attention by Colonel MUDGE and Professor DALBY, to

make experiments on the velocity of sound ; and however experiments of this kind may have been neglected, it is hoped that the present Master General of the Ordnance, a near relation of the late scientific Captain PHIPPS, (afterwards Lord MULGRAVE) will, for the purpose of perfecting a branch of science, no less curious than useful, order a series of experiments of this nature to be undertaken, not only in the inland parts of the kingdom, but also on different parts of the Coast." He then mentions that the experiments should be made under different circumstances of the wind and weather, and at different times of the 24 hours, and proceeds to enumerate the stations where the experiments should be made. He recommends that pocket chronometers should be used, " which generally making five beats in two seconds, the velocity of sound could be determined to the fraction of a second ;" and concludes by saying, " he has no doubt scientific foreigners would assist our countrymen in finding the time sound is travelling across that part of the Channel, where the shores are visible from each other."

At Fort St. George (Madras) a morning and an evening gun are fired from the ramparts, as is customary in fortified places, the former at day light, and the latter at eight o'clock in the evening. At St. Thomas's Mount, the artillery cantonment, morning and evening guns are also fired, one at day light, and the other at sun set. The Madras Observatory, in latitude $13^{\circ} 4' 8''$ north, is situated between these ; the distance of it from the Fort, about half its distance from the Mount, the Fort being to the N. E. of the Observatory, and the Mount to the S.W. In former years, as I have mentioned before, experiments were made by me for ascertaining

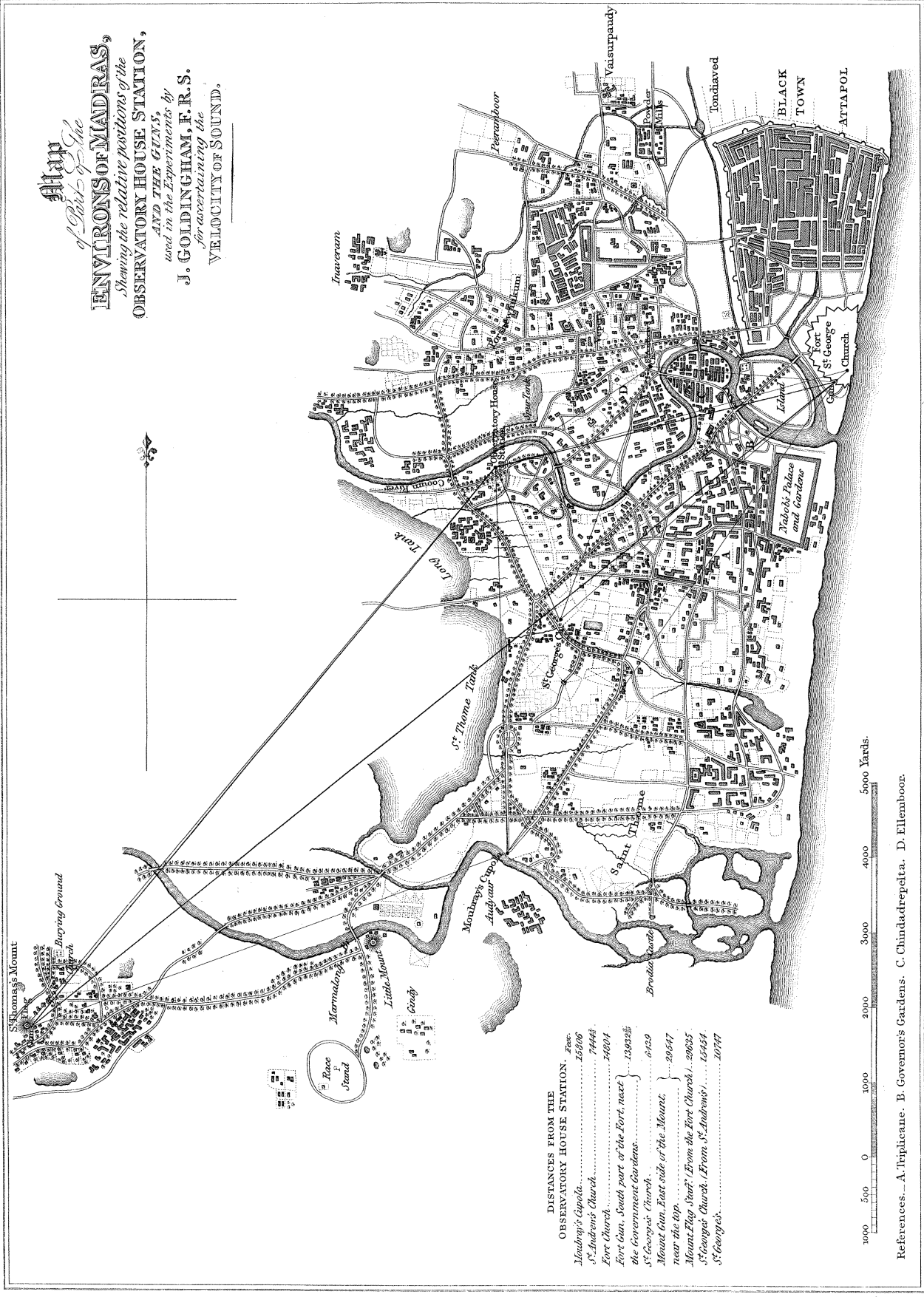
the velocity of sound, but were not brought forward. And a new building,* elevated so as to give a commanding view of the country, particularly of the Mount† and Fort‡, having been erected, I commenced a new series with the morning and evening guns of both places. The experiments with the Mount gun, it will be seen, comprise an interval, which embraces all the varieties of the wind and weather during the revolution of the sun; the interval with the Fort gun is less, in consequence of the morning and evening guns having been fired from different parts of the ramparts, after the date at which the Fort experiments close. All the experiments were made with chronometers, which had 100 beats in 40 seconds, sometimes by three observers, myself and two of the Observatory Bramin assistants, but generally by two: the observers having repaired to the station at the top of the Observatory building, a little before the expected time, and each holding his chronometer so that he could distinctly hear the beats, began to count the instant he saw the flash, and continued counting until he heard the report; the number of beats between the flash and report was then immediately put down upon a slip of paper, by each observer, without communication with the others, and the papers delivered to me for their contents to be registered; the height of the thermometer, barometer, and hygrometer, with the direction of the wind and state of the weather, were also observed at the time, and registered; and in this manner the whole of the

* The station on this building is about 55 feet above the level of the sea, distant in a direct line 4500 yards.

† The Mount gun is about 120 feet above the level of the sea.

‡ The Fort gun is about 30 feet above the level of the sea..

Map
of **CHITTOOR**
ENVIRONS OF MADRAS,
Showing the relative positions of the
OBSERVATORY HOUSE STATION,
AND THE GUNS,
J. GOLDINGHAM, F.R.S.
for ascertaining the
VELOCITY OF SOUND.



DISTANCES FROM THE
OBSERVATORY HOUSE STATION. *From*

Moulbrey's Cupola.....	15506
S ^t Andrew's Church.....	7444
Fort Church.....	74004
Fort Gun, South part of the Fort, next the Government Gardens.....	13933
S ^t George's Church.....	6129
Mount Gun, East side of the Mount, near the top.....	29547
Mount Flag Staff? From the Fort Church.....	20035
S ^t George's Church. (From S ^t Andrew's).....	15454
S ^t George's.....	10747

References. A. Triplicane. B. Governor's Gardens. C. Chindamrepelta. D. Ellemboor.

experiments were made. The situations of the guns with respect to the station from which the observations were taken, was very favourable, being in the direction, one of N. E. and the other of the S.W. monsoons—with the southerly wind and sea breeze, (both which prevail at certain seasons of the year,) blowing between the two. The guns used were 24 pounders, charged with 8lbs. of powder, and both pointed, not exactly towards the station, but in a direction not far from it.

The distances were ascertained with great care: first, by a survey made for the purpose, a base having been measured, and the angles taken with a grand circular instrument, similar to that used on the trigonometrical surveys.* Secondly, by using two or three of Colonel LAMBTON's distances and bearings found by the trigonometrical survey.

The results were thus deduced, and verified in different ways; and I have reason to think that the distances of the guns from the Observatory station are very accurately given. The mean of 12 results made the distance of the Mount Gun from the station 29547 feet; and the mean of 6 results, gave the distance of the Fort Gun from the station 13932,3 feet. The map† will show the exact relative positions and distances of the points, and the face of the country over which the sound travelled.

* I have not given the details of the survey, as that would swell the Paper to an inconvenient size: the base, however, was measured with great care twice, and generally six observations were taken for finding each angle, each observation differing very little from the other.

† The angles and distances were protracted, and the map of the intermediate country filled up from the best surveys, under the superintendence of E. LAKE, Esq. of the Madras Engineers, my son-in-law.

We see, as I before remarked, that the distance of one gun from the station is nearly double that of the other, and this will be found an advantage, in showing whether sound travels equally during its progress.

The experiments are given in the subjoined Tables.

Table I. Contains the experiments of each day with the Mount gun, together with the state of the atmosphere and the direction of the wind at the time of observation: the titles at the heads of the columns render a particular explanation unnecessary—the number of observers is stated in the third column, and the mean of their observations in the ninth.

Table II. Contains the mean of observations of each day, when the air was calm.

Table III. The mean of observations of three days, when the wind was in the S. E. quarter.

Table IV. The mean of observations of three days, when the wind was in the N. E. quarter.

Table V. The mean of observations of three days, when the wind was S.W. by W. or N.W.

Table VI. The experiments with the Fort gun, arranged as those in Table I., with the Mount gun.

Tables VII., VIII., IX., and X. The experiments with the Fort gun arranged according to the state of the wind, as in the former Tables of experiments with the Mount gun.

Table XI. Shows the mean motion of sound for each month at the Madras Observatory, as found by the experiments, at the mean height of the thermometer, barometer, and hygrometer, given in the table.

Upon a cursory inspection of Tables I. and IV., it will be seen that the motion of sound varies under different states of

the atmosphere and weather : that according to the first table, sound at one time has been as long as 27,6 seconds in travelling from the Mount to the Observatory station ; and at another time only 24,8 seconds ; the distance being 29547 feet. In the first case, therefore, the velocity of sound was only about 1078 feet in a second ; while in the other, its velocity was nearly $1191\frac{1}{2}$ feet. The extremes in Table VI., show a still greater difference. This proves the necessity for making experiments during a long interval, in order to obtain an accurate general result.

In Tables II. and VII. we find, as the thermometer rose, the atmosphere at the same time decreasing in density and increasing in its elasticity, that the sound moved with greater rapidity.

That with the wind in the SE. quarter the velocity was considerably increased, both from the Mount and Fort ; more, however, in proportion, as might be expected, from the former than the latter.

That with the wind at NE. the sound from the Fort gun travelled with a greater, and from the Mount gun with a less velocity, than when the wind was in any other direction ; that wind being favourable for increasing the velocity from the Fort, and unfavourable from the Mount : the full effect of the wind, however, is not to be ascertained by this table alone, as the thermometer during the time the NE. wind prevails is comparatively low, and the barometer high ; both which, as will have been seen by inspection of the tables, occasion the sound to travel slower than ordinary.

The wind SW. W. and NW. the velocity from the Mount was accelerated, and that from the Fort retarded ; but not in

the degree that would have taken place had the thermometer, barometer, and hygrometer, remained the same as in the NE. monsoon; but having been different, the velocity was accelerated from both guns on this account, in like manner as it was retarded in the NE. monsoon.

The following are the results deduced from the experiments in the different tables. I shall first give the general results from Table I. and VI.

Mean height of Barom.		Thermo- meter.	Hygro- meter.	Seconds.	Distance.	Velocity in a Second.
Tab.	Inch.				Feet.	Feet.
I.	29,992	84,11	19	25,869	29,547	1142,18

Or almost precisely the same as the velocity by the theory.

Barometer.		Thermo- meter.	Hygro- meter.	Seconds.	Distance.	Velocity in a Second.
Tab.	Inch.		Dry.		Feet.	Feet.
VI.	30,065	80,47	11,4	12,306	13932,3	1132,14

Here we find a difference from the former general result by the observations with the Mount gun; the reason of which appears to be, that I could not, as I have before stated, carry on the observations during at least a complete revolution of the changes in the atmosphere; and that this is the reason I shall now endeavour to show. The interval wanting is between the 28th of March and the 16th of July. Had this interval been wanting in the experiments with the Mount gun, there would have been a difference of 0,237 seconds in the mean result; for the mean of the experiments in this

interval is $25''{,}632$, and the mean of the whole $25''{,}869$, making the difference just mentioned.

Now $25''{,}869 + 0''{,}237 = 26''{,}106$, which would have been the mean number of seconds had the observations with the Mount gun been continued during the same interval only as the experiments with the Fort gun. Then $26''{,}106 : 0''{,}237 :: 12''{,}306$ (the mean of the Fort observations) : $0''{,}112$. Now $12''{,}306 - 0''{,}112 = 12''{,}194$, which would have been the general mean of the experiments with the Fort gun, had the same been continued as long as the experiments with the Mount gun. Then the distance $13932{,}3$ feet, divided by $12{,}194$, will give $1142{,}5$ for the motion of sound by the experiments with the Fort gun thus brought on ; and this also agrees, within a fraction of a foot, with the velocity according to Sir ISAAC NEWTON ; and with the results by the two other celebrated philosophers before named. Feet

We then have by the Mount gun $1142{,}18$ for the velocity.

And by the Fort gun - - - $1142{,}5$.

The mean is $1142{,}34$, or very nearly the velocity above alluded to. Nothing could be more satisfactory than this general result ;* and it may be presumed, that the other results in different states of the atmosphere are equally to be depended upon.

The velocity also by the Fort gun, which, it will be recollected, is little more than half the distance of the Mount gun from the station, shows that sound travels equally during its progress.

In the N E. monsoon, the sound was very indistinct at times ; this however does not appear to have sensibly affected

* The results by the Mount gun may however be taken as the standard.

its motion. The French academicians indeed proved, as I have mentioned before, that this made no difference in the velocity.

I shall now proceed to the conclusions from the other Tables ; and first, those of the experiments with the Mount gun.

	Baro- meter	Thermo- meter.	Hygro- meter.	Wind.	Seconds.	Distance.	Velocity in a second.
Table	Inches.	°	°		"	Feet.	Feet.
II.	29,990	83,95	20,31	Calm	25,712	29,547	1149,2
III.	29,972	85, 5	19,96	SE	25,754		1147,2
IV.	30,113	81, 7	10, 9	NE	26,812		1102,0
V.	29,934	85, 1	26,	SW.W.&NW	25,374		1164,4

Secondly. The experiments with the Fort gun.

Table							
VII.	30,111	79, 3	11,85	Calm	12,313	13932,3	1131,5
VIII.	30,023	82, 3	14, 6	SE	12,231		1139,1
IX.	30,131	78, 6	7,33	NE	12,340		1129,0
X.	29,979	81, 9	11,41	SW.W.&NW	12, 46		1118,1

The results in these Tables, like the separate observations, show the necessity of making a series of experiments long continued, in order to obtain the correct general rate at which sound travels ; and this may afford a clue, as I observed in the first part of this paper, for discovering the cause of the differences in the results by the authorities there named : it is difficult, undoubtedly, to ascertain the distance of two stations, one far from the other, to the nearest foot ; but errors of many feet in this respect, would make but a small difference in the velocity in a second found by experiment, when

the gun and station were even at a moderate distance ;* we must therefore be led to conclude, that these differences have chiefly arisen from the experiments having been made during a limited period only, and at unfavourable times for obtaining a mean result, instead of the interval which appears by these experiments to be necessary.

A particular examination of the Tables and results, will show the difficulty of ascertaining what proportion of the differences should be allowed to each of the instruments used for finding the state of atmosphere, exclusive of the effects of the wind.

During the calms, we might expect that the proportional parts to be allowed for the difference in the thermometer, barometer, and hygrometer, might be found with some degree of accuracy ; the discrepancies, however, are very considerable. Comparing the results of Tables II. and VII. we find the barometer 0,121 lower, the thermometer $4^{\circ},6$ higher, and the air about $8\frac{1}{2}$ more dry by the former Table than by the latter, while the velocity in a second is only 17,7 feet greater by one Table than the other.

We give however in addition the following results taken from the Tables of calms, and arranged according to the different heights of the thermometer and barometer. These results may assist us in coming to some conclusion upon this part of the subject.

* For example, a difference of about twenty-six feet in the distance, between the Observatory station and the Mount gun, would make only about a foot difference in the velocity in a second.

<i>* Experiments with the Mount gun.</i>					
Baro- meter. Inches.	Thermo- meter. °	Hygro- meter. °	Seconds.	Distance. Feet.	Velocity in a Second. Feet.
30,109	88,13	26,4	25,97	29,547	1137,7
29,889	88,	28,4	25,45		1160,9
30,140	77,16	11,5	26, 3		1123,4
30,089	81, 3	11,3	26,40		1119,2
29,915	84,96	20,3	25,81		1144,7
29, 93	82,12	16,0	25,91		1140,3
30,046	82, 9	18,9	25,75		1146,5
<i>With the Fort gun.</i>					
30,163	86, 3	23,8	12,27	13932,3	1135,5
30,135	74, 1	13,8	12,72		1095,3
30,063	80,76	8,8	12,11		1150,5
30,147	77, 5	10,8	12,37		1126,3
29,943	82,25	15,	12,15		1146,7
30,078	82, 4	10,4	12,35		1128,1

Where the changes are so numerous and so frequent as in the atmosphere of the earth, we cannot expect that our imperfect instruments will be of a construction sufficiently delicate to show accurately every alteration that may affect the motion of the pulses of the air ; but by various comparisons and combinations of the results, we may hope to arrive at general conclusions, somewhat approaching the truth.

Now, by numerous combinations of the observations just given, when the air was calm, we are led to conclude : first,

* These are deduced from 100 observations.

that for each degree of the thermometer 1,2 feet may be allowed in the velocity of sound for a second ; for each degree of the hygrometer 1,4 ; and for one-tenth of an inch of the barometer* 9,2 feet. Then taking these numbers as the basis of the comparison, we find the mean difference of the velocity between a calm, and in a moderate breeze of wind, to be nearly 10 feet in a second. And by comparing other results together, a difference of about $21\frac{1}{4}$ feet in a second, or 1275 in a minute is found between, the wind being in the direction of the motion of sound, or opposed to it.

Before I conclude these introductory observations, and explanations of the experiments, it may be proper to refer more particularly to Table XI., containing the mean motion of sound for each month of the year, by the experiments with the Mount gun, according to the state of the atmosphere indicated by the different instruments ; and to the prevailing monsoons, which may be considered to be the same, during the same months, every year ; full information respecting which is given in the former Tables. On examining this Table, it is rather curious to observe how regularly the mean velocity proceeds to a maximum about the middle of the year, and afterwards retraces its steps ; giving us a velocity in one case 1164 feet in a second, and in the other of only 1099 feet. This regularity would, no doubt, be still greater with the mean of the observations of several years.

* The rise and fall of the barometer is very limited in this country, as will be seen by an examination of the Tables. A sudden fall of 0,3 inch indicates a gale of wind.

J. GOLDINGHAM.

Madras, 31st May, 1822.

Experiments for ascertaining the motion of Sound, with a gun placed on St. Thomas's Mount, station at the top of the Madras Observatory House.

Table I.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds		
1820.				h.	Inches.	°	Dry.		"		
July	14	1	E	6	29,878	84,8	22	62,0	24,8	SE	Cloudy.
	15	1	E	6	29,910	83,5	23	62,0	24,8	SE	Cloudy and rain.
	16	1	E	6	29,900	83,5	18	64	25,6	Calm	Cloudy and rain.
	17	1	E	6	29,910	82,3	15	63	25,2	SE	Cloudy.
	18	1	E	6	29,842	84,3	17	64	25,6	Calm	Thin haze.
	19	1	M	5	29,870	79,8	12	62	24,8	Light NE	Cloudy and rain.
		1	E	6	29,865	83,3	14	63	25,2	SE	Hazy.
	20	1	E	6	29,855	84,0	15	63	25,2	SE	Clear.
	21	1	E	6	29,870	83,5	15	64	25,6	SE	Hazy.
	22	1	M	5	29,920	80,0	12	64	25,6	Land	Cloudy.
		1	E	6	29,900	80,4	14	62	24,8	SE	Hazy.
	23	1	M	5	29,920	80,5	14	63	25,2	Land	Cloudy.
		1	E	6	29,928	83,3	16	64	25,6	Calm	Cloudy.
	24	1	M	5	29,920	80,0	14	64	25,6	W	Hazy.
		1	E	6	29,915	83,3	16	63	25,2	SE	Cloudy.
	25	1	M	5	29,955	80,2	14	62	24,8	W	Cloudy.
		1	E	6	29,925	84,5	20	63	25,2	SE	Hazy.
	26	1	M	5	30,045	80,0	16	65	26,0	Light W	Hazy.
		1	E	6	30,018	87,0	24	63	25,2	Calm	Thin haze.
	27	1	E	6	30,048	83,3	20	63	25,2	SE	Hazy.
	28	1	M	5	30,055	80,7	15	65	26,0	Land	Cloudy.
		1	E	6	30,020	80,4	11	63	25,2	Light SE	Cloudy.
	29	1	M	5	30,020	79,8	9	65	26,0	SE	Clear.
		1	E	6	30,028	81,8	7	63	25,2	Fresh SW	Cloudy.
	30	1	M	5	30,040	77,8	7	64	25,6	Land	Clear.
		1	E	6	30,000	83,0	8	64	25,6	SE by E	Clear.
	31	1	M	5	30,025	81,0	8	62	24,8	Light SW	Clear.
		1	E	6	29,966	84,0	10	64	25,6	Light NE	[lightning. Cloudy; some rain, thunder and
Aug.	1	1	E	6	29,965	81,0	7	62	24,8	Calm	Clear.
	2	1	E	6	29,968	81,8	4	63	25,2	NW	Cloudy.
	3	2	M	5	30,020	80,2	4	63,5	25,4	W	Cloudy.
		1	E	6	29,975	82,5	6	63,0	25,2	Light SE	Thin haze.
	4	1	E	6	30,000	82,0	9	64	25,6	SE	Clear.
	5	2	M	5	30,030	80,0	7	64	25,6	Calm	Cloudy, and some rain.
		1	E	6	29,968	82,0	7	63	25,2	SE	Hazy.
	6	1	E	6	29,955	83,0	10	63	25,2	SE	Thick haze.
	7	2	M	5	30,000	80,5	9	64	25,6	W	Cloudy.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820. Aug.	7	1	E	h.	Inches	°	Dry.		"		
	8	1	M	6	29,988	81,5	11	64	25,6	SE	Cloudy.
	19	2	E	6	30,015	80,2	9	64	25,6	W	Cloudy.
	20	2	E	6	29,800	88,0	20	61, 5	24,6	W	Hazy.
	21	1	M	5	29,855	85,5	16	63, 5	25,4	SE	Hazy.
	22	2	E	6	29,960	83,0	14	62	24,8	Light land	Clear.
	23	1	E	6	29,935	85,6	18	63	25,2	SE	Clear.
	24	1	M	5	29,965	87,0	19	64	25,6	SE	Hazy; lightning and thunder.
	25	2	E	6	29,956	85,5	18	63, 5	25,4	SE	Hazy.
	26	1	M	5	29,908	83,0	15	64	25,6	Land	Cloudy. [thunder.
	27	2	E	6	29,945	82,6	14	63	25,2	SW	Cloudy and rain; lightning with
	28	2	E	6	29,955	87,5	19	63, 5	25,4	Calm	Hazy.
	29	2	M	5	29,920	88,5	25	64, 5	25,8	E	Hazy.
	30	1	E	6	29,965	82,2	20	63, 5	25,4	Land	Clear.
	31	1	E	6	29,900	85,5	24	64	25,6	NW	Rain.
Sept.	1	1	M	5	29,944	82,8	19	63, 5	25,4	Land	Cloudy and lightning.
	2	1	E	6	29,915	89,5	25	64	25,6	Land	Hazy.
	3	1	E	6	29,957	86,5	20	64	25,6	SE	Clear.
	4	1	E	6	29,925	86,5	19	65, 5	26,2	E breeze	Clear.
	5	1	E	6	29,900	88,2	22	64	25,6	ESE	Hazy.
	6	1	E	6	29,930	86,5	20	63	25,2	Light SE	Hazy.
	7	2	M	5	29,975	81,5	19	63	25,2	Fresh WSW	Cloudy; lightning in the NE quar. [ter.
	8	2	E	6	29,935	87,5	18	64	25,6	W by N	Cloudy; lightning to the westward.
	9	2	E	6	29,945	85,2	17	64, 5	25,8	SE by E	Clear; lightning in the SW quarter.
	10	2	M	5	29,970	84,0	15	63, 5	25,4	W by S	Clear.
	11	1	E	6	29,915	85,2	16	63	25,2	SE	Clear; and lightning at a distance.
	12	1	E	6	29,925	84,5	17	65	26,0	SE by E	Hazy.
	13	2	E	6	29,930	86,0	16	63, 5	25,4	SE by S	Hazy.
	14	1	M	5	29,976	83,2	17	63	25,2	SE	Hazy.
	15	2	E	6	29,945	84,5	19	65	26,0	SE	Clear.
	16	1	-	-	29,948	85,5	18	63	25,2	ESE	Clear.
	17	2	-	-	30,100	84,5	16	64	25,6	SE by E	Cloudy
	18	1	-	-	30,000	82,5	15	65	26,0	NE by E	Cloudy, and some rain.
	19	2	-	-	29,945	80,0	13	63	25,2	SE by S	Cloudy and rain.
	20	2	-	-	29,910	83,0	7	63	25,2	SE by E	Clear.
	21	2	-	-	29,945	83,5	16	64	25,6	ESE	Clear.
	22	2	-	-	30,045	83,5	14	64	25,6	Calm	Cloudy.
	23	1	-	-	30,045	84,5	16	64	25,6	SE by E	Clear.
	24	2	-	-	30,015	84,4	14	64	25,6	SE by E	Cloudy.
	25	1	-	-	30,045	86,0	19	64	25,6	SE	Hazy.
	26	2	-	-	29,950	82,5	13	64, 5	25,8	Calm	Cloudy.
	27	2	-	-	29,956	84,8	14	64	25,6	SE by E	Hazy.
	28	2	-	-	30,020	87,0	23	64, 5	25,8	Calm	Hazy.
	29	2	-	-	30,100	88,5	27	64, 0	25,6	Calm	Hazy.
	30	2	-	-	30,055	86,5	21	64, 0	25,6	SE by E	Hazy.
	31	2	-	-	30,005	84,0	15	64, 5	25,8	SE	Hazy.
	1	2	-	-	30,056	87,0	19	64,25	25,7	SE by S	Clear.
	2	1	-	-	30,065	84,5	19	63, 5	25,4	SW light	Hazy.
	3	2	-	-	30,160	88,5	25	64,25	25,7	NW	Clear.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820.				h.	Inches.	°	Dry.		"		
Sept.	30	2	E	6	30,173	89,2	22	64,25	25,7	Calm	Clear.
Oct.	1	2	—	—	30,200	89,2	27	64, 4	25,8	Calm	Clear.
	2	2	—	—	30,238	91,0	34	64,85	25,9	Calm	Hazy.
	3	2	—	—	30,200	87,8	29	65	26,0	E by N	Thin haze.
	4	1	—	—	30,160	86,6	27	64	25,6	Calm	Hazy.
	5	1	—	—	30,045	86,5	20	64	25,6	SE by S	Hazy.
	6	1	—	—	30,050	86,5	19	64	25,6	SE	Clear.
	7	1	—	—	30,100	86,0	22	64	25,6	SE	Cloudy.
	8	1	—	—	30,088	84,5	22	64, 5	25,8	SE	Hazy.
	9	1	—	—	30,088	84,2	20	64, 0	25,6	SE	Clear.
	10	1	—	—	30,045	85,8	20	64	25,6	SE	Clear.
	11	1	—	—	30,065	83,5	20	64, 5	25,8	SE by S	Clear.
	12	1	—	—	30,045	85,5	21	65, 0	26,0	SE by E	Clear; sound indistinct.
	13	1	—	—	30,065	86,2	20	64, 5	25,8	NE	Clear.
	14	1	—	—	30,075	86,5	22	66	26,4	E	Clear.
	15	1	—	—	30,066	86,4	21	66, 5	26,6	E	Clear.
							Damp				
	20	1	—	—	30,008	77,5	2	68	27,2	NE	Cloudy.
	21	1	—	—	30,085	81,5	2	67, 5	27,0	NE	Clear.
	22	1	—	—	30,055	83,4	0	65, 5	26,2	NE by N	Cloudy; distant thunder.
	24	1	—	—	30,078	82,4	2	66, 5	26,6	NE	Hazy.
							Dry				
	26	1	—	—	30,110	84,0	14	66	26,4	NE by E	Clear.
	28	2	—	—	30,128	83,2	13	66, 5	26,6	NE	Hazy.
							Damp				
Nov.	31	2	—	—	30,082	79,8	3	67, 0	26,8	NE light	Cloudy.
	1	2	—	—	30,072	83,0	4	66	26,4	ENE	Hazy.
	2	2	—	—	30,110	84,2	3,5	66, 5	26,6	NE	Cloudy.
							Dry				
	3	2	—	—	30,115	84,5	3	67, 7	27,1	E	Clear.
	4	2	—	—	30,100	84,5	6	65	26,0	E by S	Clear.
	5	1	—	—	30,135	84,0	11	67	26,8	EN	Clear.
	6	2	—	—	30,140	83,0	15	66	26,4	ESE	Clear.
	7	2	M	5	30,170	77,4	11	65, 5	26,2	S by E	Clear.
		2	E	6	30,168	83,0	15,5	66, 0	26,4	ESE	Clear.
	8	2	M	5	30,188	76,0	12	65, 0	26,0	Calm	Clear; sound indistinct.
		2	E	6	30,178	83,0	17	65,75	26,3	E by N	Clear.
	9	2	E	6	30,200	83,0	14,5	66, 5	26,6	ENE by E	Clear; sound indistinct.
	10	2	M	5	30,178	79,6	11	66,75	26,7	NE	Clear; ditto.
		2	E	6	30,175	83,2	11,5	67, 0	26,8	NE	Clear.
	12	1	—	—	30,220	83,5	14	66, 5	26,6	E by N	Cloudy.
	14	1	—	—	30,134	81,0	1,5	68, 5	27,4	NE	Cloudy.
	15	1	—	—	30,125	79,4	2	68, 5	27,4	NE	Rather cloudy; sound indistinct.
	17	1	—	—	30,165	83,0	14	66, 5	26,6	NE	Hazy.
	18	1	—	—	30,115	79,4	5	67, 5	27,0	Light NE	Hazy.
	19	2	—	—	30,125	81,8	5	67,25	26,9	NE	Clear.
	21	2	—	—	30,110	80,5	11	68,25	27,3	NNE	Clear.
	23	1	—	—	30,076	80,0	12	69	27,6	NE	Clear.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820.				h.	Inches.	°	Dry.				
Nov.	24	1	E	6	30,128	80,7	15	68, 5	27,4	NE	Clear ; sound very indistinct.
	27	1	—	—	30,135	73,4	14	68	27,2	NE	Clear.
Dec.	4	2	—	—	30,015	75,6	9,5	65,25	26,1	SW by N	Clear.
	5	2	—	—	30,068	79,4	3,0	65, 0	26,0	SE	Clear.
	6	2	—	—	30,075	81,0	6,5	66, 5	26,6	E	Clear.
	7	2	—	—	30,085	80,4	3,5	67,25	26,9	NNE	Clear ; sound very indistinct.
							Dry				
	10	2	—	—	30,106	79,3	7,0	68,25	27,3	ENE	Hazy.
	12	2	—	—	30,125	78,8	11,5	68	27,2	N	Cloudy.
	13	1	—	—	30,090	79,0	0,5	67, 5	27,0	NE	Cloudy.
							Damp				
	14	2	M	5	30,074	77,0	1,5	67,25	26,9	NE	Clear.
							Dry				
	15	2	E	6	30,108	81,0	4	67	26,8	E by N	Cloudy.
	16	1	—	—	30,120	81,0	9	67, 5	27,0	NE	Clear.
	17	1	M	5	30,122	77,2	2	66, 5	26,6	NW light	Ditto.
1821.											
	1	1	E	6	30,112	80,8	7	68, 5	27,4	NE	Ditto.
	18	1	M	5	30,120	77,0	5	68	27,2	NW	Clear and dew.
	19	1	E	6	30,110	79,5	16	67, 5	27,0	NE	Hazy.
							Damp				
	26	2	—	—	30,028	81,6	9	66,25	26,5	NE	Clear.
	27	1	—	—	30,038	81,5	6	67	26,8	ENE	Hazy.
	28	1	—	—	30,165	76,2	7	68	27,2	NE light	Cloudy.
	9	2	—	—	30,200	79,2	2	68, 5	27,4	NE	Clear.
							Dry				
	10	2	—	—	30,168	79,0	1	67, 0	26,8	NE	Ditto.
	12	2	—	—	30,220	82,0	9	67, 5	27,0	Calm	Ditto.
	16	1	M	5	30,155	76,2	6	66, 5	26,6	Calm	Ditto.
	2	2	E	6	30,155	80,0	8,5	67, 0	26,8	Calm	Hazy.
Feb.	17	1	M	5	30,175	75,0	7,5	66, 0	26,4	Calm	Clear.
	19	2	E	6	30,155	80,0	2	68, 5	27,3	East	Cloudy.
	21	1	M	5	30,138	76,5	5,5	67, 0	26,8	NE	Clear.
	2	2	E	6	30,138	79,5	12	67, 5	27,0	E	Ditto.
	22	1	—	—	30,130	80,5	9	66, 5	26,6	NE	Ditto.
	23	2	—	—	30,110	80,6	11,5	66,75	26,7	NE	Ditto.
	24	2	—	—	30,055	80,0	12	66,75	26,7	Calm	Ditto.
	25	2	—	—	30,088	80,5	10	67,75	26,7	Calm	Ditto.
	26	2	—	—	30,100	79,0	10	68, 5	27,4	NE	Cloudy.
	28	1	—	—	30,050	80,5	9,5	67	26,8	Calm	Clear.
	29	1	M	5	30,058	75,2	8,5	66, 5	26,6	Calm	Ditto.
	2	2	E	6	30,048	81,0	9,5	66,25	26,4	Calm	Clear.
	30	1	—	—	30,048	81,0	9,5	66,25	26,5	Calm	Ditto.
Feb.	1	1	M	5	30,000	74,5	8,5	65	26,0	Calm	Hazy ; dew
	2	1	E	6	30,062	81,0	13	67, 5	27,0	NE	Clear.
	3	2	—	—	30,105	80,5	13	67	26,8	E	Clear ; sound indistinct.
	4	1	—	—	30,148	80,0	12	68	27,2	NE	Ditto.
	1	1	M	5	30,110	76,2	11	68	27,2	NE	Ditto.
	5	1	E	6	30,130	80,6	13	67	26,8	Light NE	Ditto.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821. Feb.	6	1	E	6	30,100	78,0	12,5	66, 5	26,6	NE	Clear; sound indistinct.
		1	E	5	30,100	72,0	12,5	66, 5	26,6	Calm	Ditto.
	7	2	E	5	30,144	80,5	14	66	26,4	Calm	Ditto.
	8	2	-	-	30,135	79,2	29	64,25	25,7	SE	Ditto.
		1	M	5	30,155	72,5	12	65	26,0	NW	Ditto.
	9	1	E	6	30,138	80,2	25	65	26,0	SE light	Ditto.
	10	2	-	-	30,165	79,4	21	65,75	26,3	E	Ditto.
	11	2	-	-	30,215	77,0	16	65, 5	26,2	Calm	Ditto.
	12	2	-	-	30,185	80,5	12,5	66,75	26,7	NE	Ditto.
	13	2	-	-	30,218	80,0	13	67, 0	26,8	Light NE	Ditto.
	14	2	-	-	30,155	80,5	14	66,25	26,5	E by N	Ditto.
	15	2	-	-	30,188	80,0	13	66,75	26,7	E	Ditto.
	16	1	M	5	30,188	75,5	13	66	26,4	Calm	Ditto.
	17	1	E	6	30,168	79,2	15,6	66	26,4	Light SE	Hazy.
	18	1	-	-	30,090	79,0	16	66	26,4	Calm	Clear.
		1	M	5	30,165	73,5	14,5	66	26,4	Calm	Ditto.
	19	2	E	6	30,100	79,5	14	55, 5	26,2	SE	Ditto.
	20	2	-	-	30,125	80,3	14	66	26,4	ESE	Ditto.
	21	2	-	-	30,135	81,0	14	65, 5	26,2	SE	Ditto.
	22	2	-	-	30,115	70,8	14	66,25	26,5	SE by E	Ditto.
	23	2	-	-	30,130	81,6	16	65,75	26,3	E by S	Ditto.
	24	1	-	-	30,120	82,0	16	66	26,4	SE	Ditto.
	25	2	-	-	30,110	81,6	15	65,75	26,3	SE by E	Ditto.
	26	2	-	-	30,100	82,0	14,5	66, 5	26,6	SE	Ditto.
	27	2	-	-	30,036	83,0	14	65, 5	26,2	SE	Ditto.
	28	2	-	-	30,015	81,4	14,5	65,25	26,1	SE	Ditto.
March	1	1	-	-	30,060	82,5	14,5	66	26,4	SE	Hazy.
	2	2	-	-	30,155	82,0	16	65, 5	26,2	SE	Clear.
	3	2	E	-	30,120	82,0	17	65,25	26,1	SE	Ditto.
	4	1	-	-	30,045	79,2	20	65, 0	26,0	SE	Ditto.
	5	2	-	-	30,065	81,5	18,5	65,25	26,1	SE	Ditto.
	6	2	-	-	30,135	82,0	20	65, 5	26,2	SE	Somewhat hazy.
	7	2	-	-	30,125	80,8	19	65,75	26,3	SE	Clear.
		1	M	5	30,125	75,5	19	66	26,4	Light SE	Ditto.
	8	1	E	6	30,110	82,5	19	66	26,4	SE by E	Ditto.
	9	1	-	-	30,105	80,0	14	66, 5	26,6	SE	Ditto.
	11	1	-	-	30,110	82,0	13	64, 5	25,8	SE	Cloudy, and rain.
	12	1	-	-	30,000	82,5	13	65, 0	26,0	SE	Clear.
	13	2	-	-	30,048	83,0	13,5	65,25	26,1	SE	Ditto.
	14	1	-	-	30,115	82,5	14	64, 5	25,8	SE	Ditto.
		1	M	5	30,100	80,4	11,5	65	26	SE	Ditto.
	15	1	M	-	30,125	81,4	14	64	25,6	Light SW	Ditto.
	16	2	E	6	29,960	82,5	13	64, 5	25,8	SE	Ditto.
	19	2	-	-	29,948	83,4	12	64, 5	25,8	SE	Ditto.
	20	1	-	-	30,045	84,0	12	65	26	SE	Cloudy.
	22	1	-	-	29,975	84,0	12,5	65	26	SE	Clear.
	23	1	-	-	29,982	83,8	13	64	25,6	SE	Ditto.
	24	2	-	-	30,000	83,5	13	64,25	25,7	SE	Ditto.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821.				h.	Inches.		Dry.		"		
March	25	2	E	6	30,065	84,5	14,5	64	25,6	SE	Hazy.
	26	1	-	-	30,135	83,4	15	65, 5	26,2	Light SE	Ditto.
	28	2	-	-	30,105	84,0	16	65,25	26,1	SE	Clear.
	29	1	-	-	30,084	84,0	17,5	66	26,4	ENE	Hazy, and clear.
	30	2	-	-	30,110	83,0	16	65, 5	26,2	SE	Clear.
Apr	31	2	-	-	30,065	84,5	15,8	65, 5	26,2	SE	Ditto.
	2	2	-	-	30,125	84,7	16,3	64,75	25,8	SE	Ditto.
	3	2	-	-	30,125	84,0	16	65	26,0	SE	Ditto.
	4	1	-	-	30,128	85,0	20	64, 5	25,8	SE	Ditto.
	5	2	-	-	30,110	84,5	19	64, 5	25,8	SE	Ditto.
	6	2	-	-	30,118	85,0	17	64	25,6	SE	Ditto.
	7	2	-	-	30,110	83,5	17	64, 5	25,8	SE	Ditto.
	8	1	-	-	30,165	84,5	16,5	64	25,6	SE	Ditto.
	9	2	-	-	30,046	84,5	16,5	64, 5	25,8	SE	Ditto.
	10	1	-	-	30,028	85,5	19,5	64, 5	25,8	SE	Hazy.
	11	2	-	-	29,958	87,5	17	63,75	25,4	SE	Clear.
	12	2	-	-	29,955	87,2	18	63,75	25,5	S by E	Ditto.
	13	2	-	-	29,965	86,0	16	64, 5	25,8	S	Ditto.
	14	2	-	-	30,000	85,0	18	64, 5	25,8	SE	Ditto.
	15	2	-	-	30,000	85,0	19	64, 5	25,8	SE	Ditto.
	16	2	-	-	30,000	86,5	19	64,75	25,9	SE	Ditto.
	17	2	-	-	29,974	85,4	16,4	65,75	26,3	SE	Ditto.
	18	2	-	-	29,965	86,0	16	64,25	25,7	SE	Ditto.
	19	2	-	-	29,985	86,0	16	63,75	25,5	SE	Ditto.
	20	2	-	-	29,988	88,2	16	65, 5	26,2	Fresh SE	Ditto.
	21	2	-	-	30,015	86,5	17	64, 0	25,6	SE	Ditto.
	22	2	-	-	30,018	89,8	17,5	64, 5	25,8	SE	Ditto.
	23	2	-	-	29,988	86,8	18	63,75	25,5	SSE	Ditto.
	24	2	-	-	30,008	86,0	18	64,75	25,9	SE	Ditto.
	25	2	-	-	30,015	86,0	16,5	64,75	25,9	SE	Ditto.
	26	1	-	-	30,100	87,5	16	65, 5	26,2	SE	Ditto.
	27	2	-	-	29,965	86,5	16	65,25	26,1	SE	Ditto.
	29	2	-	-	30,000	83,5	18,5	64,25	25,7	SE	Ditto.
	30	2	-	-	30,012	85,6	15,8	65,25	26,1	SE	Ditto.
May	3	1	-	-	30,035	85,5	18	64, 0	25,6	SE	Ditto.
	4	2	-	-	30,026	87,5	16	64, 5	25,8	SE	Ditto.
	5	2	-	-	29,980	87,2	16,2	63, 5	25,4	SSE	Ditto.
	6	1	-	-	29,958	87,5	15,5	64, 5	25,8	SE by S	Ditto.
	7	1	-	-	29,988	87,2	15	65	26,0	SE	Ditto.
	8	2	-	-	29,958	87,0	17,5	64,75	25,9	SE	Ditto.
	9	2	-	-	29,958	87,3	15,5	64,25	25,7	SSE	Ditto.
	10	2	-	-	29,958	87,0	17	64,25	25,7	SE	Somewhat hazy.
	11	2	-	-	29,946	87,4	15,5	64,25	25,7	SE by E	Clear.
	12	2	-	-	29,900	87,0	16	64,75	25,9	SE	Hazy.
	13	2	-	-	29,855	92,5	17	64,75	25,9	SE by E	Clear.
	14	2	-	-	29,858	88,2	15	64,25	25,7	SE	Ditto.
	16	2	-	-	29,945	87,2	19	64, 5	25,8	SE	Ditto.
	17	2	-	-	29,922	88,0	16,5	64, 5	25,8	SE	Ditto.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821.				h.	Inches.	°	Dry.		"		
May	18	1	E	6	29,865	87,5	17,5	63, 5	25,4	SE	Clear.
	19	2	—	—	29,778	89,2	21,5	64, 0	25,6	ESE	Ditto.
	20	2	—	—	29,700	89,2	25	64,25	25,7	ESE	Hazy.
	21	1	—	—	29,788	88,5	26	64, 5	25,8	SE	Cloudy.
	22	2	—	—	29,855	88,0	26	64,25	25,7	SSE	Hazy.
	23	1	—	—	29,805	89,2	26	65, 0	26,0	SE	Cloudy.
	24	2	—	—	29,788	89,8	25	64, 0	25,6	SE	Ditto.
	25	2	—	—	29,815	89,5	26	64,75	25,9	SE	Clear.
	26	2	—	—	29,885	88,0	20,5	64,25	25,7	SSE	Ditto.
	27	2	—	—	29,816	89,0	22,5	64, 0	25,6	SE	Ditto.
	28	2	—	—	29,867	86,7	20,0	63	25,2	SE	Ditto.
	29	2	—	—	29,900	89,2	22	62,75	25,1	SE	Ditto.
	30	1	—	—	29,888	87,5	24	63	25,2	SE	Ditto.
	31	2	—	—	29,900	89,2	26	63,25	25,3	S by E	Ditto.
June	1	2	—	—	29,918	87,7	27	64, 5	25,8	SE	Ditto.
	2	1	—	—	29,868	88,3	27	63, 5	25,4	Fresh SE	Hazy.
	4	2	—	—	29,940	90,7	28	63,75	25,5	SE	Clear.
	5	2	—	—	30,000	86,5	20	63,75	25,5	S	Hazy.
	6	1	—	—	29,965	87,2	22	63	25,0	Fresh S by E	Clear.
	8	1	—	—	29,674	86,0	20	64	25,6	SE	Ditto.
	9	2	—	—	29,900	86,4	18	63,75	25,5	SSE	Ditto.
	10	2	—	—	29,905	87,5	22	64, 0	25,6	SE by E	Ditto.
	11	2	—	—	29,858	86,8	19	63,75	25,5	S	Clear; distant lightning.
	12	1	—	—	29,858	87,0	19	65, 0	26,0	SE	Clear.
	13	1	—	—	29,845	88,2	22	65, 0	26,0	Light SE	Ditto.
	14	2	—	—	29,835	83,5	22	63, 5	25,4	SSE	Ditto.
	15	1	—	—	29,865	88,2	22	63	25,2	Fresh SE	Ditto.
	16	1	—	—	29,868	88,5	25	65, 5	26,2	Fresh SE	Ditto.
	17	1	—	—	29,855	88,5	22,0	65, 5	26,2	Fresh SE	Hazy.
	18	1	—	—	29,900	86,6	23,0	66, 0	26,4	Fresh SE	Clear.
	19	2	—	—	29,900	86,0	23,0	63,75	25,5	S	Cloudy.
	20	1	—	—	30,000	86,2	25,5	63	25,2	SE	Clear.
	21	2	—	—	29,945	85,8	25,0	63,75	25,5	Light ESE	Ditto.
	22	2	—	—	29,936	89,0	30,0	63, 5	25,4	SE	Cloudy.
	23	2	—	—	29,900	89,6	32	63,75	25,5	Light SE	Ditto.
	25	1	—	—	29,928	87,2	29,5	64, 5	25,8	SE by E	Ditto.
	26	2	—	—	29,928	86,5	29,5	64,25	25,7	SE	Ditto.
	27	2	—	—	29,945	85,0	23	63,25	25,3	SSW	Ditto.
	28	2	—	—	29,968	85,2	22	63,25	25,3	SW by S	Clear.
		2	M	5	29,988	84,8	27,2	63,25	25,3	NW	Hazy.
	29	2	E	6	29,928	86,2	23	64, 0	25,6	SE	Clear.
		2	M	5	29,975	86,0	25,8	63, 5	25,4	NW	Somewhat hazy.
	30	2	E	6	29,888	91,0	35	62	24,8	SW	Hazy.
		2	M	5	29,925	87,0	34,5	62,75	25,1	W	Clear.
July	1	1	E	6	29,838	90,7	37,5	63	25,2	Light W	Hazy.
		2	M	5	29,874	88,0	35	63,25	25,3	NW	Cloudy.
	3	2	E	6	29,835	91,6	40	63,25	25,3	Fresh W	Ditto.
		2	M	5	29,894	87,0	39,5	64,25	25,7	Light W	Hazy.
	4	1	E	6	29,835	93,5	40	63, 0	25,2	SW	Ditto.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821. July	4	2	M	5	Inches.	°	Dry.				
	4	2	E	6	29,922	89,8	38,5	63,25	25,3	Light NW	Hazy.
	5	2	E	6	29,936	89,5	35,5	63, 5	25,4	W	Clear.
	5	2	M	5	29,868	88,5	35,0	63, 5	25,4	SE	Flying clouds.
	6	2	E	6	29,878	87,5	32	63, 5	25,4	SSE	Cloudy.
	6	2	M	5	29,915	88,7	33	63, 5	25,4	WSW	Clear.
	7	2	M	5	29,892	86,4	30	62,75	25,1	SW	Cloudy.
	8	1	E	6	29,908	87,4	31	64	25,6	SE and SW	Ditto.
	8	2	M	5	29,945	86,7	29,5	63,25	25,3	SW	Ditto.
	9	1	E	6	29,885	88,0	34,5	63, 5	25,4	Light SW	Hazy.
	9	2	M	5	29,944	86,2	34,7	63,75	25,5	WNW	Ditto.
	10	2	E	6	29,905	88,5	32	62,75	25,1	Light SE	Clear.
	10	2	M	5	29,934	85,8	31,5	62,75	25,1	W by N	Ditto.
	11	2	E	6	29,835	88,5	33,5	65,25	26,1	SE	Cloudy and rain.
	11	2	M	5	29,926	86,5	32,6	63	25,2	Light W	Clear.
	12	2	E	6	29,888	86,5	37	63,75	25,5	SE	Ditto.
	12	2	M	5	29,955	86,5	33	63, 5	25,4	Light W	Hazy.
	13	2	E	6	29,928	86,0	35,5	64, 0	25,6	SE by E	Cloudy.
	14	2	—	—	29,874	85,0	29,5	64,25	25,7	SE by E	Hazy.
	14	2	M	5	29,873	85,2	29,5	64, 0	25,6	Light SW	Ditto.
	15	2	E	6	29,845	86,5	29,8	64,25	25,7	SE	Ditto.
	15	2	M	5	29,900	84,5	27	65,25	26,1	Calm	Cloudy.
	16	2	E	6	29,900	84,5	24	64,25	25,7	SSE	Hazy.
	16	2	M	5	29,915	83,0	23,2	63, 0	25,2		Clear.
	17	2	E	6	29,882	86,0	26,7	64,25	25,7	SE	Ditto.
	17	2	M	5	29,924	86,7	24,2	63, 5	25,4	Light NW	Ditto.
	18	2	E	6	29,855	88,4	29,5	63,75	25,5	SE	Ditto.
	18	2	M	5	29,810	84,5	25	63	25,2	SW	Cloudy, and some rain. [morning.
	19	2	E	6	29,900	86,2	24,8	63,25	25,3	Calm	Cloudy, and rain at 4 o'clock in the
	19	2	M	5	29,910	85,0	23,5	64,25	25,7	Calm	Cloudy, and rain in the night.
	20	2	E	6	29,888	86,6	29	64	25,6	SW	Cloudy, and rain.
	20	2	M	5	29,932	84,5	25,6	63	25,2	SW	Hazy.
	21	1	E	6	29,878	87,2	29,5	63	25,2	W by N	Cloudy.
	21	2	M	5	29,942	84,2	29,0	62,75	25,1	Light W	Cloudy, and some rain.
	22	2	E	6	29,858	87,5	31	63, 5	25,4	Calm	Hazy.
	23	2	—	—	29,888	88,8	34	62, 5	25,0	SW	Ditto.
	23	2	M	5	29,944	86,0	32	63, 0	25,2	W	Clear.
	24	2	E	6	29,900	87,2	30	63,75	25,5	SE	Ditto.
	24	2	M	5	29,945	86,6	30	63,25	25,3	W	Ditto.
	25	2	E	6	29,928	87,5	30	64, 5	25,8	SE	Ditto.
	25	2	M	5	30,005	86,2	28,5	63, 0	25,2	S by W	Hazy.
	26	2	E	6	29,928	87,2	28,5	63,75	25,5	SE	Ditto.
	27	2	—	—	29,945	86,2	25,5	63, 5	25,4	SSW	Clear.
	27	2	M	5	29,945	84,2	25,2	64	25,6	Light W	Hazy.
	28	1	E	6	29,905	87,0	31	64	25,6	SW	Clear.
	28	2	M	5	29,945	86,4	28,7	64,75	25,9	NW	Ditto.
	29	2	M	—	29,960	86,0	25,6	64,75	25,9	Calm	Rain.
	30	2	E	6	29,918	87,0	25,5	63,75	25,5	SE	Clear.
	30	2	M	5	29,996	85,0	25,2	64, 0	25,6	NW	Hazy; lightning.
	31	2	E	6	29,965	87,8	29,5	64,25	25,7	Light NW	Cloudy.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom	Beats.	Seconds.		
1821.				h.	Inches.	"	Dry.	"			
July	31	2	M	5	29,990	85,2	26	63,25	25,3	W	Rain.
Aug.	1	2	E	6	29,948	83,2	22	63,75	25,5	Light SSW	Hazy.
	2	2	M	5	29,965	83,0	22	63,25	25,3	SW	Cloudy. [ning to the westward.
	2	2	E	6	29,915	84,8	22	64,25	25,7	Calm	Cloudy; distant thunder and light-
	2	2	M	5	29,925	83,4	22,6	64,25	25,7	SW	Rain.
	3	2	E	6	29,868	87,0	25,5	63,25	25,3	Calm	Hazy.
	4	2	M	5	29,944	80,0	23,5	64, 0	25,6	Calm	Somewhat hazy.
	4	1	E	6	29,900	85,2	24	64, 0	25,6	W	Cloudy.
	5	2	M	5	29,922	86,2	23,6	63,25	25,3	Light NW	Cloudy; rain the whole night.
	5	2	E	6	29,900	84,8	24	63, 0	25,2	W	Misty.
	6	2	M	5	29,985	81,0	23,5	63,25	25,3	SW	Hazy.
	6	2	E	6	29,868	86,0	28,6	62, 5	25,0	SW	Cloudy.
	7	2	M	5	29,885	82,0	25	62,75	25,1	SW	Hazy.
	7	2	E	6	29,862	86,2	27,5	62,75	25,1	SW	Cloudy and rain.
	8	2	-	-	29,825	85,6	26,5	62,75	25,1	WNW	Ditto, ditto.
	9	2	M	5	29,860	83,4	27	62, 5	25,0	WNW	Ditto.
	9	2	E	6	29,838	83,5	25,5	63,25	25,3	W	Ditto, and rain.
	10	2	M	5	29,875	83,6	25,4	64,25	25,7	Light SW	Hazy.
	10	2	E	6	29,878	88,0	32,0	62, 5	25,0	SW	Cloudy.
	11	2	M	5	29,945	85,4	30,0	63, 0	25,2	SW	Hazy.
	11	2	E	6	29,878	90,4	35,0	63, 0	25,2	SW	Clear.
	12	2	M	5	29,965	86,4	31,8	64,25	25,7	NW	Ditto.
	12	2	E	6	29,925	90,5	35	63, 5	25,4	SW by N	Hazy.
	13	2	M	5	29,926	86,0	32,5	63, 5	25,4	W	Somewhat hazy.
	13	2	E	6	29,920	90,5	33,0	63,75	25,5	Calm	Cloudy.
	14	2	M	5	29,955	86,5	28,8	62,75	25,1	SW	Ditto.
	14	2	E	6	29,965	87,0	28,5	64, 0	25,6	SE	Ditto, lightning.
	15	2	-	-	29,938	88,0	29,5	63,75	25,5	SE	Ditto and some rain.
	16	2	M	5	29,987	84,5	28	64,25	25,7	NW	Clear.
	16	2	E	6	29,908	87,0	28	64, 0	25,6	SE	Ditto.
	17	2	M	5	29,940	86,4	28	63,25	25,3	Light SW	Ditto.
	17	2	E	6	29,848	89,8	34	63	25,2	Calm	Ditto.
	18	2	M	5	29,896	86,0	31,7	63,25	25,3	SW	Ditto.
	18	2	E	6	29,835	87,0	33	64, 5	25,8	Calm	Ditto.
	19	2	M	5	29,875	85,5	28,4	62, 5	25,0	W	Ditto.
	19	2	E	6	29,835	89,5	33,5	63,25	25,3	Calm	Hazy.
	20	2	M	5	29,915	87,0	32	64	25,6	Light W	Cloudy.
	20	2	E	6	29,878	90,6	34,5	62,75	25,1	SW	Ditto.
	21	2	M	5	29,915	86,5	32,5	63, 0	25,2	Light W	Hazy.
	22	2	M	6	29,966	86, 0	30	63,75	25,5	NW	Ditto.
	22	2	E	5	29,918	90,5	35	63,25	25,3	Calm	Ditto.
	23	2	M	6	29,974	86,0	31,5	63,75	25,5	W	Somewhat hazy.
	23	2	E	5	29,935	92,7	35	63,75	25,5	W	Clear.
	24	2	M	5	29,962	86,6	31,5	64	25,6	NW	Ditto.
	24	2	E	6	29,925	87,5	30	64, 5	25,8	SE	Ditto.
	25	1	M	5	29,970	86,0	28	63, 0	25,2	SW	Very clear.
	26	2	E	6	29,932	86,7	31,5	63, 5	25,4	S	Clear.
	26	2	-	-	29,935	85,6	28	64, 5	25,8	SSE	Cloudy.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821. Aug.				h.	Inches.		Dry.		"		
	27	2	M	5	29,965	84,0	28	63,75	25,5	W	Hazy.
		2	E	6	29,915	87,0	30	64,75	25,9	SE	Very clear.
		2	M	5	29,965	85,0	29,5	63, 5	25,4	Light SW	Cloudy.
	28	2	E	6	29,915	86,6	29,0	64, 5	25,8	SE	Clear.
		2	M	5	29,968	84,5	26,8	63, 5	25,4	SW	Ditto.
	29	2	E	6	29,905	87,5	29,5	64, 5	25,8	SE	Ditto.
	30	1	—	—	29,948	86,5	27	65	26,0	SE	Ditto.
		2	M	5	30,016	85,0	25	63	25,2	S	Cloudy, and lightning.
	31	2	E	6	29,955	85,5	24	65,25	26,1	SE	Clear.
Sep.	1	2	—	—	29,944	85,0	23,5	65	26,0	SE	Ditto.
	2	2	—	—	29,990	86,0	24	65, 5	26,2	E	Cloudy, and thunder.
		2	M	5	30,020	81,2	23,4	63,25	25,3	Fresh SW	Cloudy, and rain in the night.
	3	2	E	6	29,928	87,0	22,0	63,75	25,5	S	Clear.
		2	M	5	9,935	82,4	22	63, 0	25,2	SSW	Cloudy, and some rain.
	4	2	E	6	29,925	86,0	22,5	64,75	25,9	SE	Cloudy.
		2	M	5	29,905	82,7	21,5	65, 0	26,0	Calm	Thin haze.
	5	2	E	6	29,945	87,2	25	64,75	25,0	Light SE	Clear.
		2	M	5	29,986	83,0	21,5	63,25	25,3	Light SW	Clear; and lightning in the NE.
	6	2	E	6	29,938	86,2	23	64,75	25,9	SE	Hazy.
	7	2	—	—	29,945	85,4	23	63,75	25,5	SW	Cloudy.
		2	M	5	29,975	84,4	23	63,25	25,3	SW	Hazy.
	8	2	E	6	29,920	85,4	22	63,75	25,5	SE	Ditto.
		2	M	5	29,965	83,0	21,2	63,25	25,3	SW	Rain in the night. [sun rise.
	9	2	M	5	29,932	82,0	22	65, 5	26,2	NNW, cold	Cloudy; and rain from sun set to
	10	2	E	6	29,888	86,0	21	64,25	25,7	Calm	Clear. [loud thunder.
		2	M	5	29,915	82,6	19,8	64,75	25,9	Light NW	Rain; lightning, and uncommonly
	11	2	E	6	29,868	86,0	20,0	64, 5	25,8	Calm	Clear.
		2	M	5	29,915	80,5	17,4	63	25,2	SW, cold	Cloudy the whole night.
	12	1	E	6	29,845	84,4	18,2	65, 5	26,2	Calm	Hazy.
		2	M	5	29,875	82,0	16,7	62,25	24,9	Light SW	Rain, with lightning.
	13	2	E	6	29,838	83,0	22	65,75	26,3	Calm	Hazy.
		2	M	5	29,872	80,5	16	64,75	25,9	Ditto	Cloudy; rain at night.
	15	2	E	6	29,865	84,2	17	64	25,6	Ditto	Clear.
		2	M	5	29,925	82,4	15	64,75	25,9	Ditto	Ditto.
	16	2	E	6	29,880	84,5	15	64	25,6	Ditto	Hazy.
		2	M	5	29,925	83,0	15	63,75	25,5	Ditto	Clear.
	17	2	E	6	29,878	86,0	17	65,25	26,1	SE	Hazy.
		2	M	5	29,945	82,4	17,5	64,75	25,9	NW	Clear.
	18	2	E	6	29,920	84,6	19	64,75	25,9	SE	Thin haze.
		2	M	6	29,948	84,0	16,5	64,25	25,7	Calm	Hazy.
	19	2	E	5	29,920	85,6	17,5	64, 5	25,8	Ditto	Clear.
	20	2	—	—	29,888	84,8	17	65	26,0	SE	Hazy.
		2	M	5	29,900	82,4	17	64,25	25,7	NW	Tolerably clear.
	21	1	E	6	29,835	85,5	19	66	26,4	SW	Cloudy.
		2	M	5	29,882	82,6	17,6	64,75	25,9	Calm	Cloudy, with lightning.
	22	2	E	6	29,945	85,0	19	64,25	25,7	Ditto	
		2	—	—	29,858	86,0	23	63,75	25,5	SW	Hazy.
	23	2	M	5	29,884	83,0	27,5	63,25	25,3	W	Mostly cloudy.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821. Sep.	24	2	M	5	29,916	82,6	23,5	63,75	25,5	Calm	Clear.
	25	2	E	6	29,878	87,0	28	64,75	25,9	Calm	Cloudy.
	26	2	—	—	29,905	86,2	27	63,75	25,5	SW	Hazy.
	27	2	M	5	29,945	84,5	29,5	63,25	25,3	SW	Cloudy.
	27	2	E	6	29,955	85,6	22	64,75	25,9	SE	Hazy.
	28	2	M	5	30,018	82,7	18	63,75	29,5	Calm & dew	Clear.
	28	2	E	6	29,955	84,4	20	65,75	26,3	Calm	Cloudy; rain and lightning.
	29	2	M	5	30,025	81,6	20	64,25	25,7	Light SW	Cloudy, and lightning.
	29	2	E	6	29,970	83,0	20	64, 5	25,8	SW	Cloudy, and rain.
	30	2	M	5	30,034	80,0	18,8	64, 0	25,6	Calm	Clear.
	30	2	E	6	30,015	84,2	18,5	64,75	25,9	Ditto	Ditto.
	1	2	M	5	30,074	81,9	18	63,75	25,5	Ditto	Tolerably clear.
	1	2	E	6	30,038	85,6	20	65	26,0	SE	Clear.
Oct.	2	2	M	5	36,082	82,6	17,8	64,25	25,7	Calm	Mostly clear.
	2	2	E	6	30,005	84,5	19	63,75	25,5	Light SE	Clear.
	3	2	—	—	29,945	85,5	18,5	64,25	25,7	SE	Ditto.
	4	2	—	—	29,900	86,2	17,5	64,75	25,9	Ditto	Ditto.
	4	2	M	5	29,975	82,5	16	64, 5	25,8	Calm	Clear, and distant lightning.
	5	2	E	6	29,923	85,5	18	64,25	25,7	Ditto	Cloudy.
	6	2	M	5	29,978	79,5	16,8	64, 5	25,8	SW	Cloudy, and rain. [thunder.
	6	1	E	6	29,975	85,5	17,5	65, 5	26,2	NE	Cloudy; rain, and lightning with
	7	2	M	5	29,985	82,0	17,2	63,25	25,3	W	Hazy, and some rain.
	7	2	E	6	29,965	85,0	16,5	65,25	26,1	NW	Cloudy.
	8	2	M	5	29,990	81,4	16	65,25	26,1	Calm	Cloudy at sun rise.
	8	1	E	6	29,970	85,0	20	65, 5	26,2	NE	Hazy.
	9	1	M	5	30,015	83,6	17,2	64, 5	25,8	Calm	Clear.
	9	2	E	6	29,978	86,0	21	66, 5	26,6	Light NE	Ditto.
	10	2	M	5	29,984	83,0	17,8	65,25	26,1	Calm	Ditto.
	10	2	E	6	29,978	85,0	25	65, 5	26,2	Ditto	Ditto.
	11	2	M	5	30,030	83,0	19	64, 5	25,8	Ditto	Ditto.
	11	2	E	6	30,005	86,0	27	66, 5	26,6	Ditto	Ditto.
	12	2	M	5	30,065	82,0	22	64,75	25,9	Ditto	Very clear.
	12	2	E	6	30,018	86,0	29	67	26,8	E	Ditto.
	13	2	M	5	30,070	79,6	21,5	65,25	26,1	Calm	Ditto.
	13	1	E	6	30,025	86,0	25	66, 2	25,4	Ditto	Ditto.
	14	2	M	5	30,080	81,0	21	65, 0	26,0	Ditto	Ditto.
	15	2	E	6	30,065	86,7	24	66,25	26,5	E	Ditto.
	16	2	—	—	30,065	87,5	23	66,75	26,7	Ditto	Thin haze.
	17	2	—	—	30,100	83,5	18	67	26,8	NE	Hazy. [afternoon.
	18	2	—	—	30,078	83,0	17	67, 5	27,0	NNE	Cloudy; rain at five o'clock in the
	19	1	—	—	30,100	83,0	22	67, 5	27,0	Light NE	Clear.
	20	2	—	—	30,043	83,5	27,5	67, 5	27,0	NE	Ditto.
	21	1	—	—	30,055	82,5	30	67, 5	27,0	Light NE	Ditto.
	22	2	—	—	30,100	79,0	27	67, 0	26,8	N	Ditto.
	23	1	—	—	30,070	84,0	25	68, 5	27,4	NE	Cloudy
	24	2	—	—	30,025	80,0	10	68,25	27,3	Light NE	Clear.
	25	2	—	—	30,044	84,4	12	65,75	26,3	SE	Ditto.
	26	2	—	—	30,060	81,2	13	67,75	27,1	E	Ditto.

Table I. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1821.				h.	Inches.	°	Dry.		"		
Oct.	27	2	E	6	30,055	85,0	15,5	67,0	26,8	Light NE	Clear.
Nov.	2	2	—	—	30,035	81,5	1,5	65,5	26,2	Ditto.	Clear.
	3	1	—	—	30,072	77,0	0,2	66,5	26,6	Calm	Misty.
	4	1	—	—	30,113	83,2	3,0	68	27,2	NE	Clear.
	5	1	—	—	30,126	82,3	8	67,5	27,0	NE	Hazy.
	6	1	—	—	30,078	82,0	10,5	68	27,2	NE	Hazy.
	7	1	—	—	30,075	82,0	13,0	67,5	27,0	NE	Clear.
	8	2	—	—	30,000	81,5	11	67,25	26,9	NE. cold	Cloudy, and rain.
	9	2	—	—	30,100	81,0	9,5	68,25	27,3	NE	Clear.
	10	2	—	—	30,055	81,6	7	68,75	27,5	NE	Cloudy, and rain.
Mean					29,992	84,11	19,0		25,869		

TABLE II.

Experiments selected from Table I., the air having been calm.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.	
1820.				h.	Inches.	°	Dry.		"	
Aug.	25	2	E	6	29,955	87,5	19	63, 5	25, 4	Hazy.
Sept.	16	2	-	6	30,045	83,5	14	64	25, 6	Cloudy.
	21	2	-	6	29,950	82,5	13	64, 5	25, 8	Cloudy.
	23	2	-	6	30,020	87,0	23	64, 5	25, 8	Hazy.
	24	2	-	6	30,100	88,5	27	64, 0	25, 6	Ditto.
Oct.	30	2	-	6	30,173	89,2	22	64,25	25, 7	Clear.
	1	2	-	6	30,200	89,2	27	64, 4	25, 8	Clear.
	2	2	-	6	30,238	91	34	64,85	25, 9	Hazy.
Nov.	8	2	M	5	30,188	76	12	65	26, 0	Clear.
1821.										
Jan.	12	2	E	6	30,220	82	9	67, 5	27, 0	Clear.
	16	2	-	6	30,155	80	8,5	67, 0	26, 8	Hazy.
		1	M	5	30,155	76,2	6	66, 5	26, 6	Clear.
	24	2	E	6	30,055	80,0	12	66,75	26,70	Clear.
	29	2	-	6	30,048	81,0	9,5	66,25	26, 5	Clear.
Feb.	7	2	-	6	30,144	80,5	14	66, 0	26, 4	Clear.
	11	2	-	6	30,215	77,0	16	65, 5	26, 2	Clear.
July	15	2	M	5	29,900	84,5	27	65,25	26, 1	Cloudy.
	19	2	E	5	29,900	86,2	24,8	63,25	25, 3	Cloudy; some rain at 4 o'clock in [the afternoon.
		2	M	5	29,910	85,0	23,5	64,24	25, 7	Cloudy; rain in the night.
	22	2	E	6	29,858	87,5	31	63, 5	25, 4	Hazy.
	29	2	E	5	29,960	86,0	25,6	64,75	25, 9	Rain.
Aug.	2	2	E	6	29,915	84,8	22,0	64,25	25, 7	Cloudy.
	3	2	-	6	29,868	87,0	25,5	63,25	25, 3	Hazy.
		2	M	5	29,944	80,0	23,5	64, 0	25, 6	Hazy.
	13	2	E	6	29,920	90,5	33,0	63,75	25, 5	Cloudy.
	17	2	-	6	29,848	89,8	34,0	63, 0	25, 2	Clear.
	18	2	-	6	29,835	87,0	33	64, 5	25, 8	Clear.
Month.	Day.	Morning or Evening.	Time.	No. of Observations.	Height of			Number of		Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.	
1820.			h.		Inches.	°	Dry.		"	
Aug.	19	E	6	2	29,835	89,5	33,5	63,25	25, 3	Hazy.
	22	E	6	2	29,918	90,5	35,0	63,25	25, 3	Ditto.
Sept.	4	M	5	2	29,965	82,7	21,5	65, 0	26, 0	Ditto.
	10	E	6	2	29,888	86,0	21,0	64,25	25, 7	Clear.
	11	E	6	2	29,868	86,0	20,0	64, 5	25, 8	Clear.
	13	E	6	2	29,838	83,0	22,0	65,75	26, 3	Hazy.

Table II. continued.

Time.	Day.	Morning or Evening.	Time.	No. of Observations.	Height of			Number of		Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.	
1822.			h.		Inches.	°	Dry.		"	
Sept,	13	M	5	2	29,872	80, 5	16	64,75	25, 9	Cloudy ; rain at night.
	15	E	6	2	29,865	84, 2	17	64, 0	25, 6	Clear.
		M	5	2	29,925	82, 4	15	64,75	25, 9	Clear.
	16	E	6	2	29,880	84, 5	15	64, 0	25, 6	Hazy.
		M	5	2	29,925	83, 0	15	63,75	25, 5	Clear.
	18	—	5	2	29,948	84, 0	16, 5	64,25	25, 7	Hazy.
	19	E	5	2	29,920	85, 6	17, 5	64, 5	25, 8	Clear.
	21	M	6	2	29,818	82, 6	17, 6	64,75	25, 9	Cloudy ; with lightning
	22	E	6	2	29,945	85, 5	19, 0	64,25	25, 7	Hazy.
	24	M	5	2	29,916	82, 6	23, 5	63,75	25, 5	Clear.
	25	E	6	2	29,878	87, 0	28, 0	64,75	25, 9	Cloudy.
	27	M	5	2	30,018	82, 7	18, 0	63,75	25, 5	Clear.
	28	E	6	2	29,955	84, 4	20	65,75	26, 3	Cloudy ; rain and lightning.
	29	M	5	2	30,034	80, 8	18, 8	64, 0	25, 6	Clear.
	30	E	6	2	30,015	84, 2	18, 5	64,75	25, 9	Clear.
Oct.					30,074	81, 0	18, 0	63,75	25, 5	Very clear.
	1	M	5	2	30,082	82, 6	17, 8	64,25	25, 7	Clear.
	4	M	5	2	29,975	82, 5	16	64, 5	25, 8	Clear, and distant lightning.
	5	E	6	2	29,923	85, 5	18	64,25	25, 7	Cloudy.
	7	M	5	2	29,990	81, 4	16	65,25	26, 1	Cloudy at sun rise.
	8	M	5	1	30,015	83, 6	17, 2	64, 5	25, 8	Clear.
	9	M	5	2	29,984	83, 0	17, 8	65,25	26, 1	Clear.
	10	E	6	2	29,978	85, 0	25, 0	65, 5	26, 2	Clear.
		M	5	2	30,030	83, 0	19	64, 5	25, 8	Clear.
	11	E	6	2	30,005	86, 0	27	66, 5	26, 6	Clear.
		M	5	2	30,065	82, 0	22	64,75	25, 9	Very clear.
	12	M	5	2	30,070	79, 6	21, 5	65,25	26, 1	Clear.
	13	E	6	1	30,025	86, 0	25	66, 0	26, 4	Clear.
Nov.	13	M	5	2	30,080	81, 0	21	65, 0	26, 0	Clear.
	3	E	6	1	30,072	77, 0	0, 2	66, 5	26, 6	Misty.
Mean - -					29,990	83,95	20,31		25,712	

TABLE III.

The wind having been south easterly. Mean of the observations of three days.

Month.	No. of Observations.	Mean height of			Number of		Weather.
		Therm.	Barom.	Hygrom.	Beats.	Seconds.	
			Inches.				
Aug.	6	85.5	29.915	17, 3	63.35	25, 34	Hazy.
Sept.	6	85.6	29.957	17	63.85	25, 54	Hazy.
	6	85.0	29.991	17	64.15	25, 66	Hazy.
	6	82.2	29.960	12	63.35	25, 34	Mostly clear.
	6	84.2	30.005	14	64	25, 6	Mostly cloudy.
	6	85.8	30.055	18, 3	64.25	25, 7	Rather hazy.
Nov.	6	81.6	30.137	10, 7	65, 5	26, 2	Clear generally.
	6	81.2	30.179	6, 2	65, 5	26, 2	Clear.
Feb.	6	80.2	30.120	14	65.65	26, 26	Mostly clear.
	6	78.0	30.118	15	65, 9	26, 36	Ditto.
	6	82.1	30.050	14, 3	65.75	26, 3	Ditto.
March	6	81.8	30.113	17, 6	65, 3	26, 12	Alternately clear and cloudy.
	6	81.9	30.103	17, 5	65, 5	26, 2	Clear.
	6	83.0	29.969	12, 7	64, 4	25, 76	Mostly clear.
	6	83.8	30.092	15, 5	64.97	26, 0	Clear.
April	6	84.4	30.108	16, 0	65, 1	26, 0	Ditto.
	6	84.3	30.113	17, 7	64.35	25, 7	Ditto.
	6	86.4	30.019	17, 2	64, 0	25, 6	Ditto.
	6	85.3	29.985	17, 7	64, 5	25, 8	Ditto.
	6	86.3	29.979	17, 1	64.95	25, 98	Ditto.
	6	86.9	29.996	16, 3	64, 4	25, 76	Ditto.
	6	87.5	30.005	17, 8	64.35	25, 74	Ditto.
	6	85.3	29.990	17, 0	64.75	25, 9	Ditto.
May	6	86.8	30.006	16, 0	64, 4	25, 76	Ditto.
	6	87.0	29.958	17, 3	64.45	25, 78	Somewhat hazy.
	6	89.0	29.900	16, 2	64, 6	25, 82	Clear
	6	87.8	29.908	16, 8	64.45	25, 78	Clear.
	6	88.8	29.777	24, 2	64, 2	25, 68	Mostly hazy.
	6	89.1	29.829	23, 8	64, 3	25, 72	Clear.
	6	88.3	29.876	21, 5	63.25	25, 30	Clear.
	6	89.5	29.916	27	63.85	25, 54	Clear.
	6	86.8	29.902	20	63.85	25, 54	Clear.
	6	85.4	29.864	21, 3	63.65	25, 46	Clear; distant lightning.
	6	88.0	29.927	29	63, 7	25, 48	Cloudy.
	6	85.6	29.947	24, 8	63, 6	25, 40	Cloudy.
July	6	87.4	29.891	30, 0	63.65	25, 46	Mostly cloudy.
	6	87.8	29.876	34, 2	63, 9	25, 60	Clear; cloudy and rain.
	6	85.8	29.882	31, 6	64.15	25, 66	Generally hazy.
	6	86.3	29.879	26, 7	64, 1	25, 64	Clear.
	6	87.3	29.918	29, 5	63.85	25, 54	Clear.
Aug.	6	87.3	29.941	27, 8	63.85	25, 54	Clear.
	6	86.7	29.923	28, 7	64.35	25, 74	Clear.
	6	87.0	29.912	29, 5	64, 5	25, 8	Clear.
Sept.	6	85.2	29.972	24	64.25	25, 7	Clear.
	6	86.7	29.933	23, 2	64, 4	25, 76	Clear.
	6	85.8	29.915	20, 7	64.55	25, 82	Rather hazy.
	6	85.0	29.921	19, 0	64.75	25, 90	Hazy.
Oct.	6	85.2	29.927	19, 2	64.35	25, 74	Clear.
Mean		85.5	29.972	19.96		25.754	

TABLE IV.

The wind having been north easterly. Mean of the observations of three days.

Month.	No. of Observations.	Mean height of			Number of		Weather.
		Therm.	Bar ^m .	Hygrom.	Beats.	Seconds.	
1820.			Inches.	Dry.		"	
Oct.	6	82	30,094	2	66, 5	26, 6	Mostly hazy.
Nov.	6	83,9	30,131	5,6	66,65	26, 66	Clear and cloudy alternately.
	6	81,9	30,184	12,3	66,75	26, 70	Clear.
	6	81,5	30,110	4,8	66,65	26, 62	Clear.
Dec.	6	80,9	30,106	4,2	67, 5	27, 00	Clear.
1821.							
Jan.	6	78,4	30,102	5,7	67,85	27, 14	Mostly cloudy.
	6	80,6	30,145	2,7	67,25	26, 90	Clear and cloudy alternately.
	6	79,7	30,139	8,2	67,06	26, 82	Clear.
Feb.	6	79,6	30,150	14,8	67,55	27, 02	Clear.
	6	80,3	30,186	13,2	66, 7	26, 68	Mostly clear.
Oct.	6	84,0	30,081	21	66,75	26, 70	Ditto.
	6	85,9	30,076	21,7	66, 7	26, 68	Mostly hazy.
	6	83,2	30,074	22,2	67,45	26, 98	Cloudy, and rain.
Nov.	6	82,7	30,063	9,3	66, 6	26, 62	Ditto, ditto.
	6	81,1	30,062	16,6	67,65	27 06	Clear.
Mean		81,7	30,113	10,9		26,812	

TABLE V.

The wind having been SW. W. and NW. Mean of the observations of three days.

Month.	No. of Observations.	Mean height of			Number of		Weather.
		Therm.	Barom.	Hygrom.	Beats.	Seconds.	
		Inches.		Dry.		"	
Aug.	6	82,9	29,940	11	63, 0	25, 2	Cloudy, and thunder.
Sept.	6	82,2	29,961	19,3	63,35	25, 34	Cloudy, and lightning.
	6	86,7	29,988	19,3	63,92	25, 56	Ditto, ditto.
Dec.	6	85,3	29,973	11,8	63,95	25, 58	Variable.
1821.							
June	6	87,3	29,950	29,3	62, 9	25, 16	Hazy.
July	6	85,5	29,878	36,5	63, 0	25, 20	Mostly cloudy.
	6	88,3	29,917	37,8	63, 7	25, 48	Ditto hazy.
	6	87,3	29,917	30,8	63,15	25, 12	Hazy.
	6	86,2	29,934	32,9	63,20	25, 28	Generally cloudy.
	6	85,2	29,914	28,6	63, 5	25, 4	Clear.
	6	85,9	29,874	26,0	63, 5	25, 4	Hazy.
	6	85,8	29,921	29,8	62,75	25, 1	Ditto.
	6	86,3	29,964	30,0	63, 0	25, 2	Variable.
	6	85,6	29,945	26,5	64, 1	25, 6	Clear.
	6	86,0	29,984	26,9	63,85	25, 54	Hazy; cloudy and lightning.
Aug.	6	83,2	29,981	22,2	63,75	25, 50	Cloudy; distant thunder and light-
	6	82,8	29,936	23,7	63,15	25, 26	Cloudy, and rain. [ning with rain.
	6	84,7	29,872	27,0	62,65	25, 06	Cloudy, and rain.
	6	84,2	29,841	26,3	62, 8	25, 12	Rain.
	6	85,7	29,899	29,1	63,25	25, 30	Hazy.
	6	89,1	29,923	33,9	63, 6	25, 4	Somewhat hazy,
	6	85,7	29,956	29,8	63, 5	25, 4	Clear.
	6	86,0	29,904	29,4	63, 0	25, 20	Clear, and somewhat hazy.
	6	88,0	29,903	33,0	63,25	25, 30	Clear, and hazy.
	6	88,2	29,958	32,2	63,75	25, 50	Hazy.
	6	85,0	29,966	28,5	63, 4	25, 36	Clear.
Sept.	6	82,7	29,987	24,9	63, 7	25, 48	Rain, and lightning. [lightning.
	6	83,6	29,955	22,2	63, 3	25, 32	Cloudy, and some rain; thunder and
	6	82,5	29,937	21,0	64,45	25, 78	Rain from sun set to sun rise.
	6	81,6	29,912	17,2	63, 3	25, 32	Mostly hazy.
	6	84,9	29,888	22,3	63, 9	25, 56	Hazy.
	6	83,0	29,980	23,2	64, 0	25, 60	Mostly cloudy and rain.
Oct.	6	82,2	29,976	16,8	64,35	25, 74	Ditto, ditto.
Mean		85,1	29,934	26		25,374	

TABLE VI.

Experiments for ascertaining the Motion of Sound with a gun placed on the Ramparts of Fort St. George. Station at the top of the Madras Observatory House.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820.				h.	Inches.	°	Dry.		"		
July	16	1	E	8	29,875	82,4	16	31,0	12,4	SE	Cloudy.
	17	1	—	8	29,830	83,2	14	31	12,4	SE	Hazy.
	18	1	M	5	29,845	79,8	10	33	13,2	NW	Cloudy.
		1	E	8	29,848	83,9	10	31	12,4	Light SE	Clear.
	19	1	M	5	29,870	79,8	12	32	12,8	Light NE	Cloudy, and rain.
		1	E	8	29,875	82,5	13	30	12,0	SE	Clear.
	20	1	E	8	29,878	83,0	14	30	12,0	SE	Ditto.
	21	1	E	8	29,900	82,0	14	31	12,4	SE	Cloudy.
	22	1	M	5	29,920	80,0	12	31	12,4	W	Ditto.
		1	E	8	29,925	80,4	15	30	12,0	Calm	Ditto.
	23	1	M	5	29,920	80,5	14	31	12,4	Land or W	Ditto.
		1	E	8	29,926	82,0	15	31	12,4	Calm	Ditto.
	24	1	M	5	29,920	80,0	14	31	12,4	W	Hazy.
		1	E	8	30,000	82,8	15	30	12,0	SE	Rain.
	25	1	M	5	29,955	80,2	14	32	12,8	Land	Cloudy.
		1	E	8	29,988	84,0	19	31	12,4	SE	Ditto.
	26	1	M	5	30,045	80,0	16	31	12,4	Light land	Hazy.
		1	E	8	30,040	85,0	20	31	12,4	W	Cloudy.
	27	1	M	5	30,050	82,2	20	30	12,0	W	Hazy.
		1	E	8	30,055	83,0	19	30	12	SE	Thin haze.
	28	1	M	5	30,055	80,7	15	31	12,4	W	Cloudy.
		1	E	8	30,025	81,0	9	30	12,0	Calm	Ditto.
	29	1	M	5	30,020	79,8	9	32	12,8	SE	Variable.
		1	E	8	30,022	79,8	7	31	12,4	SE	Cloudy.
	30	1	M	5	30,040	77,8	7	30	12,0	W	Clear.
		1	E	8	30,008	83,0	7	29	11,6	Fresh SE	Very clear.
	31	1	M	5	30,025	81,0	8	30	12,0	Light SW	Clear.
		1	E	8	30,000	81,7	10	30	12,0	SSE	Cloudy.
Aug.	1	1	E	8	30,015	82,0	7	30	12,0	Light SE	Clear.
	2	1	E	8	30,000	81,0	5	30	12,0	Calm	Cloudy.
	3	1	M	5	30,020	80,2	4	30	12,0	W	Ditto.
		1	E	8	30,025	82,5	6	29	11,6	SE	Clear.
	4	1	—	8	30,015	81,5	8	30	12,0	SE	Ditto.
	5	1	M	5	30,030	80,0	7	29	11,6	Calm	Cloudy.
		1	E	8	29,975	82,0	7	29	11,6	SE	Clear.
	6	1	—	8	29,965	82,5	6	31	12,4	SW	Cloudy.
	7	1	M	5	30,000	80,5	9	30	12,0	Land	Ditto.
		1	E	8	30,015	81,0	8	30	12,0	Calm	Ditto.
	8	2	M	5	30,015	80,2	9	31,5	12,6	W	Ditto.
		2	E	8	29,945	81,0	10	31	12,4	W	Cloudy, and lightning.
	9	2	M	5	29,955	79,8	9	32	12,8	W	Cloudy.
		2	E	8	29,955	82,0	10	32	12,8	Fresh W	Cloudy, and thunder.
	11	2	M	5	30,000	80,6	8	30,5	12,2	Light SW	Hazy.
		2	E	8	29,965	84,0	9	30,0	12,0	SE	Ditto, and lightning.
	12	2	M	5	29,978	81,2	5	31,0	12,4	W	Clear, and distant lightning.
		2	E	8	29,945	83,3	8	30,0	12,0	SE	Hazy, and distant lightning.
	13	2	M	5	30,000	81,4	7	30,5	12,2	Calm	Cloudy, and ditto.

Table VI. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820.	Aug.			h	Inches.	°	Dry.		"		
	13	2	E	8	29,955	84,4	11	31,0	12,4	Light SW	Hazy.
	14	2	M	5	29,970	81,5	11	31,0	12,4	Ditto	Cloudy, and lightning.
		2	E	8	29,950	84,0	11	29,5	11,8	Calm	Ditto.
	15	2	E	8	29,920	83	9	31,0	12,4	W	Hazy.
	16	2	E	8	29,865	84,5	17	30,0	12,0	SE	Cloudy.
	17	2	E	8	29,855	85,0	20	31,5	12,6	Land	Ditto.
	18	2	E	8	29,845	86,0	19	31	12,4	SW	Ditto.
	19	2	-	8	29,800	87,2	21	31	12,4	SW	Ditto.
	20	2	-	8	29,900	85,0	14	30,5	12,2	SE	Clear.
	21	2	M	5	29,960	83,0	14	31,0	12,4	W	Ditto.
		2	E	8	29,915	84,4	14	31,0	12,4	Fresh SE	Ditto.
	22	1	-	8	29,910	82,5	13	30,0	12,0	NW	Cloudy, and thunder to the east-ward.
	24	1	M	5	29,998	83,0	15	30,0	12,0	Land	Cloudy.
	25	2	E	8	29,965	85,5	17	30,5	12,2	SE	Ditto.
	26	2	-	8	30,005	84,6	17	30,5	12,2	SE	Clear.
	27	2	-	8	29,932	86,2	19	30,5	12,2	SE	Ditto.
	28	1	M	5	29,965	82,2	20	31,0	12,4	W	Ditto.
		2	E	8	29,910	84,5	24	30,5	12,2	Light SE	Ditto.
	29	1	M	5	29,944	82,8	19	31	12,4	Land	Cloudy, and distant lightning.
		2	E	8	29,935	85,2	19	29,5	11,8	SE	Clear.
	30	2	E	-	29,965	84,5	19	29,5	11,8	SE	Ditto.
	31	2	E	-	29,935	83,5	17	31	12,4	ESE	Ditto.
Sept.	1	2	E	-	29,925	84,0	19	29,5	11,8	SE by E	Ditto.
	2	2	E	-	29,960	85,2	19	30,5	12,2	SE by E	Cloudy.
	3	1	M	5	29,975	81,5	19	32,0	12,8	WSW	Ditto.
		2	E	8	29,965	82,2	19	30,5	12,2	Light SW	Clear, and distant lightning.
	4	2	E	-	29,940	84,0	17	30,0	12,0	SE by S	Clear, ditto.
	5	1	M	5	29,970	84,0	15	32,0	12,8	W by S	Clear.
		2	E	8	29,965	84,0	15	30,5	12,2	SE by S	Clear, and distant lightning.
	6	2	E	-	29,970	82,6	19	31,0	12,4	Calm	Thin haze.
	7	2	E	-	29,965	84,4	15	30,0	12,0	SE	Haze.
	8	1	M	5	29,976	83,2	17	31,0	12,4	W by S	Hazy, and lightning.
		2	E	8	29,970	84,0	15	30,5	12,2	SE by S	Vivid lightning and thunder.
	9	1	E	-	30,000	83,5	18	30,0	12,0	SE by S	Clear.
	10	1	E	-	29,975	84,2	17	30,0	12,0	SSE	Clear, and vivid lightning and thun-der.
	12	2	E	-	29,975	84,5	14	31,0	12,4	Light NE	Ditto, ditto, ditto.
	13	2	E	-	29,930	79,5	12	31,0	12,4	SE	Flying clouds.
	14	2	E	-	29,915	81,5	7	30,5	12,2	SE	Ditto.
	15	2	E	-	29,960	83,2	14	30,5	12,2	SE	Ditto.
	16	2	E	-	29,948	83,0	13	30,5	12,2	Light SE	Ditto.
	17	2	E	-	30,045	81,5	13	30,5	12,2	SE by E	Haze.
	18	1	E	-	30,010	83,0	13	31,0	12,4	Calm	Hazy.
	19	2	E	-	30,020	84,5	15	31,5	12,6	SE by E	Cloudy.
	20	2	E	-	30,020	82,0	15	31,0	12,4	Calm	Ditto.
	21	2	E	-	29,950	82,0	11	31,0	12,4	W by N	Ditto.
	22	2	E	-	29,958	83,5	14	31,0	12,4	SE by E	Hazy.
	23	2	E	-	30,050	86,6	21	30,5	12,2	Calm	Ditto.
	24	2	E	-	30,088	85,5	26	30,5	12,2	Ditto	Clear.
	25	2	E	-	30,045	85,0	20	30,5	12,2	SE	Ditto.
	26	2	E	-	30,000	83,5	18	31,0	12,4	SE by E	Flying clouds.
	27	-	-	-	30,062	85,0	15	30,5	12,2	SE	Clear; some lightning.
	28	1	-	-	30,070	83,2	17	32,0	12,8	SW	Flying clouds; lightning.
	29	1	-	-	30,166	88,2	24	31,0	12,4	NW	Clear; lightning to the south.

Table VI. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820.											
Sept.	30	2	E	8	30,200	87,0	21	31, 3	12,52	Calm	Clear ; lightning to SW. quarter.
Oct.	1	—	—	—	30,210	86,5	22	30, 3	12,12	Ditto	Ditto ; ditto to the north.
	2	—	—	—	30,230	87,2	26	30, 7	12,28	Ditto	Ditto.
	3	—	—	—	30,200	85,2	27	30, 5	12, 2	Ditto	Ditto.
	4	1	—	—	30,145	85,2	23	30, 5	12, 2	SE	Hazy.
	5	1	—	—	30,040	84,8	19	30, 0	12, 0	Ditto	Clear.
	6	1	—	—	30,050	86,4	18	30, 0	12, 0	SE by E	Flying clouds.
	7	—	—	—	30,088	85,8	20	29, 5	11, 8	SE	Cloudy.
	8	—	—	—	30,100	83,5	21	30, 0	12, 0	Ditto	Clear.
	9	—	—	—	30,075	83,5	19	30, 0	12, 0	Ditto	Ditto.
	10	—	—	—	30,075	83,5	20	30, 5	12, 2	Ditto	Ditto.
	11	—	—	—	30,075	83,2	19	30, 0	12, 0	Ditto	Ditto.
	12	—	—	—	30,038	83,5	24	30	12, 0	Ditto	Ditto ; lightning to the north.
	13	—	—	—	30,055	84,5	20,5	30	12	NE by E	Ditto.
	14	—	—	—	30,082	84,0	21	30, 5	12, 2	NE	Ditto.
	15	—	—	—	30,120	85,2	21	31, 5	12, 6	E by S	Ditto.
	16	—	—	—	30,124	84,4	20,5	31, 0	12, 4	Light NE	Rather hazy.
	18	—	—	—	30,038	81,0	15,5	30, 5	12, 2	NE by N	Cloudy.
	19	—	—	—	30,050	77,0	6	31, 5	12, 6	NE	Rain.
	20	—	—	—	30,138	77,0	2	31, 0	12, 4	N	Hazy.
	21	—	—	—	30,080	80,0	3	30, 5	12, 2	NE by N	Clear.
	22	—	—	—	30,065	81,0	1,5	32, 0	12, 8	NNW	Cloudy ; thunder and lightning.
	24	—	—	—	30,088	80,0	1,5	31, 0	12, 4	Calm	Clear.
	25	—	—	—	30,112	80,8	7,5	31, 5	12, 6	Ditto	Ditto.
	26	—	—	—	30,120	78,5	11	32, 0	12, 8	Ditto	Ditto.
	27	2	—	—	30,135	80,2	13,5	31,25	12, 5	NE light	Ditto.
	28	1	—	—	30,135	82,0	11,5	31, 0	12, 4	NE	Cloudy.
	29	2	—	—	30,124	81,5	11,5	30,75	12, 3	NNE	Ditto.
	31	2	—	—	30,085	79,0	4	31	12, 4	NW	Hazy and clear.
Nov.	1	—	—	—	30,118	82,0	4	30, 5	12, 2	Calm	Clear ; distant lightning in the SW.
	3	—	—	—	30,125	82,5	4	30, 7	12,28	Ditto	Ditto.
	4	—	—	—	30,110	81,3	6	31, 5	12, 6	Ditto	Ditto.
	5	—	—	—	30,128	82,0	10	31, 0	12, 4	ENE	Ditto.
	6	—	—	—	30,145	80,4	15	30, 5	12, 2	E	Ditto.
	7	1	M	5	30,170	77,4	11	31, 0	12, 4	S by E light	Ditto.
	2	—	E	8	30,172	79,0	15	30,75	12, 3	Calm	Ditto.
	8	1	M	5	30,188	76,0	12	30, 0	12, 0	Ditto	Ditto.
	2	—	E	8	30,186	80,4	16	30,25	12, 1	Ditto	Ditto.
	9	2	M	5	30,188	80,8	12,5	31,25	12, 5	NNW	Ditto.
	—	—	E	8	30,188	80,4	13	30, 5	12, 2	NNE	Ditto.
	10	—	M	5	30,178	79,6	11	30, 5	12, 2	NE	Ditto.
	2	—	E	8	30,178	82,0	11,5	30, 5	12, 2	Ditto	Ditto.
	12	2	—	—	30,205	81,5	12,5	30,75	12, 3	E by N	Cloudy.
	13	—	—	—	30,165	78,4	8	30,75	12, 3	NE	Ditto.
	14	—	—	—	30,165	78,4	1,5	30, 5	12, 2	Ditto	Clear.
	15	1	—	—	30,130	79,2	3	30, 0	12, 0	Ditto	Cloudy.
	16	2	—	—	30,130	82,0	6	30, 0	12, 0	Ditto	Clear.
	17	—	—	—	30,170	81,0	15	30, 5	12, 2	ENE	Rather hazy.
	18	—	—	—	30,120	80,0	5	30, 0	12, 0	NE	Cloudy.

Table VI. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820.				h.	Inches.	°	Dry.		"		
Nov.	19	2	E	8	30,110	79,5	4	30,75	12,3	NE	Clear.
	20	—	—	—	30,120	78,0	10	30,75	12,3	ENE	Cloudy.
	21	—	—	—	30,085	78,5	9,5	30,25	12,1	NNE	Clear.
	22	—	—	—	30,075	80,0	9	30,75	12,3	NE	Ditto.
	23	—	—	—	30,110	78,5	12	30,75	12,3	Ditto	Ditto.
	24	—	—	—	30,145	78,8	13	30,75	12,3	Ditto	Ditto.
	25	—	—	—	30,110	78,5	10,5	31, 0	12,4	NE by N	Ditto.
	27	—	—	—	30,180	79,0	14	31, 0	12,4	ENE	Ditto.
	28	1	—	—	30,188	78,0	15	32	12,8	NE	Ditto.
	29	2	—	—	30,210	78,0	19	31,25	12,5	Ditto	Cloudy.
							Damp				
Dec.	4	—	—	—	30,030	75,2	9	31, 5	12,6	NNW	Clear.
	5	—	—	—	30,100	77,2	4	31, 0	12,4	Calm	Ditto.
	6	—	—	—	30,088	78,5	6,5	30, 5	12,2	ENE	Clear.
	7	—	—	—	30,110	78,0	3	31, 0	12,4	NE	Ditto.
							Dry.				
	8	—	—	—	30,160	77,8	6	30,75	12,3	NNE	Ditto.
	10	—	—	—	30,120	77,4	8	31, 0	12,4	NE	Ditto.
		—	M	5	30,115	76,0	4	31,25	12,5	N	Ditto.
	11	—	E	8	30,115	76,0	12	31,25	12,5	NNE	Ditto.
	12	—	M	5	30,078	75,0	5	31,25	12,5	NbW light	Hazy.
		—	E	8	30,135	78,0	10	30, 5	12,2	NE	Cloudy.
							Damp				
	14	1	M	5	30,074	77,0	1,5	31, 0	12,4	Ditto	Clear.
							Dry.				
	2	E	8	30,100	79,0	2	30,25	12,1		E	Ditto.
	15	2	—	—	30,110	79,5	4,5	30, 5	12,2	Ditto	Ditto.
	16	1	M	5	30,095	78,0	1,0	30	12,0	E by E	Cloudy.
		2	E	8	30,125	79,5	8,5	31, 0	12,4	ENE	Clear.
	17	1	M	5	30,122	77,2	2,	30, 5	12,2	NW light	Ditto.
		2	E	8	30,135	79,2	6,5	30,75	12,3	NE	Ditto.
	18	1	M	5	30,135	75,0	5	31, 0	12,4	NNE	Ditto.
	19	—	—	—	30,120	77,0	5	30, 5	12,2	NW	Clear and dew.
		—	E	8	30,115	78,5	15	30, 0	12,0	E by N	Hazy.
	20	—	—	—	30,045	76,7	7	31, 5	12,6	NE	Cloudy.
							Damp				
	24	—	—	—	30,120	80,0	1	30, 0	12,0	Ditto	Clear.
	25	2	—	—	30,048	78,2	12	31, 0	12,4	Ditto	Ditto.
	26	1	—	—	30,058	84,5	9	30, 5	12,2	E	Ditto.
	27	2	—	—	30,075	79,2	6	31, 0	12,4	ENE	Hazy.
							Dry.				
	28	2	—	—	30,075	78,5	2,5	30,75	12,3	Ditto	Clear.
	29	1	—	—	30,110	79,2	5	31, 0	12,4	NE	Haze.
	30	2	—	—	30,100	79,0	9,5	31,25	12,5	Ditto	Cloudy
							Damp				
1821.											
Jan.	3	2	—	—	30,028	75,5	4	31, 5	12,6	Ditto	Clear.
	4	1	M	5	30,032	74,0	6	32, 0	12,8	Ditto	Ditto.
		—	E	8	30,065	75,5	0,5	31, 0	12,4	Ditto	Ditto.
	5	—	M	5	30,100	76,0	4	31, 5	12,6	Ditto	Hazy.
		—	E	8	30,128	77,2	3	30, 5	12,2	Ditto	Clear.
	6	2	—	—	30,138	75,5	3,5	31,25	12,5	Ditto	Ditto.
	7	—	—	—	30,150	77,2	7	31,25	12,5	Ditto	Cloudy.
	8	—	—	—	30,166	76,5	7	31	12,4	NE	Clear.

Table VI. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820. Jan.	9	2	E	h. 8	30,205	77,5	1	31	12,4	Calm	Clear.
	10	1	M	5	30,200	75,2	1,5	31, 5	12,6	Ditto	Ditto.
		2	E	8	30,188	77,2	3	30,75	12,3	Ditto	Ditto.
	11	1	M	5	30,200	74,6	1	31, 5	12,6	NW light	Ditto.
		2	E	8	30,218	75,8	7	31	12,4	NNE	Ditto.
	13	1	-	-	30,200	77,2	7	31	12,4	ENE	Ditto.
	14	-	-	-	30,200	77,5	8,5	31	12,4	Calm	Hazy.
	15	-	-	-	30,165	78,2	7,5	31,25	12,5	Light NE	Clear.
	16	1	M	5	30,155	76,2	6	30, 5	12,2	Calm	Ditto.
		2	E	8	30,160	77,5	9	30,75	12,3	Ditto	Ditto.
	17	-	-	-	30,175	77,2	10	30,75	12,3	East	Ditto.
	18	1	M	5	30,200	76,5	8	30, 5	12,2	Calm	Ditto, and dew.
	19	2	E	8	30,156	79,2	3	31,75	12,7	Ditto	Cloudy.
	20	-	-	-	30,130	79,0	5	31	12,4	East	Ditto.
	21	1	M	5	30,139	76,5	5,5	31	12,4	NE	Clear.
		2	E	8	30,138	77,5	11,5	31,25	12,5	NE light	Ditto.
	22	2	-	-	30,118	78,0	8,5	31, 0	12,4	Ditto	Ditto.
	23	-	-	-	30,120	78,5	11	30, 5	12,2	NE	Ditto.
	24	2	-	-	30,080	78,5	11,5	31, 0	12,4	Calm	Ditto.
	25	1	-	-	30,100	79,2	10	31, 0	12,4	NE	Hazy.
		1	M	5	30,132	77,0	10	31, 0	12,4	E	Clear, and dew.
	26	2	E	8	30,118	79,0	10,5	31, 0	12,4	NE	Hazy.
	27	1	M	5	30,115	76,5	9	30, 5	12,2	Calm	Flying clouds.
		2	E	8	30,115	78,2	9,5	31, 5	12,6	NE	Hazy.
	28	1	-	-	30,050	80,5	9,5	30, 0	12,0	Ditto	Clear.
	29	1	-	-	30,050	77,8	9	30, 5	12,2	SE light	Ditto.
	30	2	-	-	30,035	77,8	12	31,25	12,5	Calm	Ditto.
	31	-	-	-	30,005	77,8	8,5	30, 5	12,2	SE	Hazy.
Feb.	1	1	M	5	29,998	74,5	8,5	32	12,8	Calm	Ditto.
		2	E	8	30,020	77,5	10	30	12,0	E by S	Clear.
	2	-	-	-	30,028	77,2	12,5	30,75	12,3	NNE	Hazy.
	3	-	-	-	30,105	80,5	13	30,75	12,3	E	Clear.
	4	-	-	-	30,168	78,0	11,5	31,25	12,5	NE	Ditto.
							Damp				
	5	1	M	5	30,110	76,2	11	31, 5	12,6	Light NE	Clear.
		2	E	8	30,125	77,5	13	30, 5	12,2	East	Ditto.
	6	2	-	-	30,125	76,0	12	30, 5	12,2	Calm	Ditto.
		1	M	-	30,100	72,0	12,5	31, 5	12,6	Ditto	Ditto.
	7	2	E	8	30,148	75,5	13,5	31,25	12,5	Ditto	Ditto.
		1	M	5	30,135	73,0	12	30, 5	12,2	Ditto	Ditto.
	8	2	E	8	30,145	74,5	27	30,75	12,3	Ditto	Ditto.
		1	M	5	30,155	72,5	12	31, 0	12,4	NW	Ditto.
		1	E	8	30,145	73,5	23	31, 0	12,4	Calm	Ditto.
	9	2	-	-	30,200	76,0	20	31, 0	12,4	Ditto	Ditto.
	10	-	-	-	30,200	80,0	17,5	31, 0	12,4	Light E	Ditto.
	11	-	-	-	30,215	77,0	12,0	30,75	12,3	NE	Ditto.
	12	-	-	-	30,192	78,2	13,5	31,25	12,5	ENE	Ditto.
	13	1	M	5	30,210	76,0	11	30, 0	12,0	NW	Thin haze.
	14	1	E	8	30,165	78,2	14	30, 5	12,2	NE	Clear.
	15	2	-	-	30,184	78,6	14	31,25	12,5	Calm	Ditto.
	16	-	-	-	30,188	78,0	11,5	31, 0	12,4	Ditto	Ditto.
		1	M	5	30,188	75,5	13,0	31, 0	12,4	Ditto	Ditto.

Table VI. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Wind.	Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.		
1820. Feb.	17	2	E	h. 8	30,182	76, 0	14	31,75	12, 7	Calm	Clear.
	18	-	-	-	30,092	77, 8	15	30,75	12, 3	Ditto	Ditto.
	19	1	M	-	30,165	73, 5	14, 5	31, 0	12, 4	Ditto	Ditto.
	20	2	E	8	30,085	78, 2	14, 5	31,25	12, 5	SE	Ditto.
	21	-	-	-	30,135	77, 8	13, 5	30,75	12, 3	Light SE	Ditto.
	22	-	-	-	30,144	79, 2	14	30,75	12, 3	SE	Ditto.
	23	-	-	-	30,118	79, 5	14, 5	31, 5	12, 6	SE by E	Ditto.
	24	-	-	-	30,118	79, 5	16, 5	31,25	12, 5	E by S	Ditto.
	25	-	-	-	30,125	80, 4	16, 5	30, 5	12, 2	SE	Ditto.
	26	-	-	-	30,115	80, 5	15, 5	31, 0	12, 4	SE by E	Ditto.
March	27	1	-	-	30,120	81, 2	14	31,25	12, 5	SE	Ditto.
	28	2	-	-	30,040	81, 2	14	30, 5	12, 2	Ditto	Ditto.
	1	-	-	-	30,035	81, 2	14	31, 0	12, 4	Ditto	Ditto.
	2	-	-	-	30,068	81, 5	14, 5	31,25	12, 5	Ditto	Ditto.
	3	-	-	-	30,125	81, 5	15, 5	30, 5	12, 2	Calm	Ditto.
	4	-	-	-	30, 11	79, 2	17, 5	30, 5	12, 2	Ditto	Ditto.
	5	-	-	-							
	6	-	-	-	30,048	79, 2	19	30,75	12, 3	SE	Ditto.
	7	-	-	-	30,078	80, 2	18	30,75	12, 3	Ditto	Ditto.
	8	-	-	-	30,140	79, 5	20	31, 0	12, 4	Ditto	Ditto.
	9	1	M	5	30,125	80, 8	19	30, 5	12, 2	Ditto	Ditto.
	10	2	E	8	30,125	75, 5	19	31, 0	12, 4	Ditto	Ditto.
	11	-	-	-	30,115	81, 5	18, 5	31, 5	12, 6	Ditto	Ditto.
	12	-	-	-	30,124	81, 0	14	31, 0	12, 4	Calm	Cloudy; lightning.
	13	-	-	-	30,085	80, 5	10	30,75	12, 3	Light SE	Cloudy.
	14	-	-	-	30,025	82, 0	12	31, 0	12, 4	SE	Clear.
	15	-	-	-	30,018	82, 0	12	30, 5	12, 2	SE	Ditto.
	16	-	-	-	30,058	82, 0	12	30,25	12, 1	SE	Ditto.
	17	-	-	-	30,120	83, 0	14	31, 5	12, 6	SSW	Ditto.
	18	1	M	5	30,100	81, 4	11, 5	31, 0	12, 4	SE	Ditto.
	19	2	E	8	30,110	83, 4	14	30,75	12, 3	SE	Ditto.
	20	1	M	5	30,125	81, 4	14	31	12, 4	Light SW	Ditto.
	21	2	E	8	29,998	81, 5	12	31, 0	12, 4	SE	Clear, and haze.
	22	-	-	-	29,988	81, 0	11	30,75	12, 3	SE by E	Cloudy.
	23	-	-	-	29,968	83, 5	12	31, 5	12, 6	S	Ditto.
	24	1	-	-	30,015	82, 8	11	31, 0	12, 4	SE	Clear.
	25	-	-	-	29,980	83, 0	11	31, 0	12, 4	Ditto	Ditto.
	26	-	-	-	30,015	83, 0	12, 5	30, 5	12, 2	Ditto	Ditto.
	27	2	-	-	30,015	83, 0	12, 5	30,75	12, 3	Ditto	Ditto.
	28	-	-	-	30,100	83, 5	14	30,75	12, 3	Light ditto	Ditto.
	29	1	-	-	30,138	82, 4	15	30, 5	12, 2	Ditto	Ditto.
	30	-	-	-	30,085	83, 0	18	30, 0	12, 0	Calm	Cloudy.
	31	-	-	-	300 85	83, 0	18	30, 0	12, 0	SE	Clear.
Mean	-	-	-	-	30,065	80,47	11,36		12,306		

TABLE VII.

Experiments selected from Table VI. the air having been calm.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.	
1820.				h.	Inches.		Dry.			
July.	22	1	E	8	29,925	80,4	15	30	12	Cloudy.
	23	—	—	—	29,926	82,0	15	31	12, 4	Ditto.
	28	—	—	—	30,025	81,0	9	30	12, 0	Ditto.
Aug.	2	—	—	—	30,000	81,0	5	30	12, 0	Ditto.
	5	1	M	5	30,030	80,0	7	29	11, 6	Ditto.
	7	—	E	8	30,015	81,0	11	30	12, 0	Ditto.
	13	2	M	5	30,000	81,4	7	30, 5	12, 2	Ditto.
	14	2	E	8	29,950	84,0	11	29, 5	11, 8	Ditto; some rain, with light-
Sept.	6	2	—	—	29,970	82,6	19	31, 0	12, 4	Thin haze.
	18	1	—	—	30,010	83,0		31, 0	12, 4	Clear.
	20	2	—	—	30,020	82,0	15	31, 0	12, 4	Cloudy.
	23	2	—	—	30,050	86,6	21	30, 5	12, 2	Thick haze.
	24	2	—	—	30,088	85,5	26	30, 5	12, 2	Clear.
	30	—	—	—	30,200	87,0	21	31, 3	12, 56	Clear; lightning SW. quarter.
										[ning.
Oct.	1	—	—	—	20,210	86,5	22	30, 3	12, 16	Clear; lightning to the north.
	2	—	—	—	30,230	87,2	26	30, 7	12, 28	Clear.
	3	—	—	—	30,200	85,2	27	30, 5	12, 2	Ditto.
							Damp			
	24	1	—	—	30,088	80,0	1,5	31, 0	12, 4	Ditto.
Nov.							Dry.			
	25	—	—	—	30,112	80,8	7,5	31, 5	12, 6	Ditto.
	26	—	—	—	30,120	78,5	11	32, 0	12, 8	Ditto.
							Damp			
	1	2	—	—	30,118	82,0	4	30, 5	12, 2	Clear; distant lightning in the
Dec. 1821.							Dry.			
	3	2	—	—	30,125	82,5	4	30,75	12, 3	Clear.
	4	2	—	—	30,110	81,3	6	31, 5	12, 6	Ditto.
	7	2	—	—	30,172	79,0	15	30,75	12, 3	Ditto.
	8	1	M	5	30,188	76,0	12	30	12, 0	Ditto.
		2	E	8	30,186	80,4	16	30,25	12, 1	Ditto.
							Damp			
Jan.	5	2	—	—	30,100	77,2	4	31, 0	12, 4	Ditto.
	9	—	—	—	30,205	77,5	1	31, 0	12, 4	Ditto.
	10	—	M	5	30,200	75,2	1,5	31, 5	12, 6	Ditto.
							Dry.			
		1	E	8	30,188	77,2	3	30,75	12, 3	Ditto.
	14	2	—	—	30,200	77,5	8,5	31	12, 4	Hazy.
	16	2	M	5	30,155	76,2	6	30, 5	12, 2	Clear.
		1	E	8	30,160	77,5	9	30,75	12, 3	Ditto.

Table VII. continued.

Month.	Day.	No. of Observations.	Morning or Evening.	Time.	Height of			Number of		Weather.
					Barom.	Therm.	Hygrom.	Beats.	Seconds.	
1821.				h.	Inches.	°	Dry.		"	
Jan.	18	1	M	5	30,200	76,5	8	30, 5	12, 2	Clear, and dew.
	19	2	E	8	30,156	79,2	3	31,75	12, 7	Cloudy.
	24	2	—	—	30,080	78,5	11, 5	31, 0	12, 4	Clear.
	27	1	M	5	30,115	76,5	9	30, 5	12, 2	Flying clouds.
	28	1	E	8	30,050	80,5	9, 5	30, 0	12, 0	Clear.
	30	2	—	—	30,035	77,8	12	31,25	12, 5	Ditto.
Feb.	1	1	M	5	29,998	74,5	8, 5	32, 0	12, 8	Hazy dew.
	6	2	E	8	30,125	76,0	12	30, 5	12, 2	Clear.
	1	1	M	5	30,100	72,0	12, 5	31, 5	12, 6	Ditto.
	7	2	E	8	30,148	75,5	13, 5	31,25	12, 5	Ditto.
	1	1	M	5	30,135	73,0	12, 0	30, 5	12, 25	Ditto.
	8	2	E	8	30,145	74,5	27	30,75	12, 3	Ditto.
	9	—	—	—	30,145	73,5	23	31, 0	12, 4	Ditto.
	10	—	—	—	30,200	76,0	20, 0	31, 0	12, 4	Ditto.
	15	—	—	—	30,184	78,0	14	31,25	12, 5	Ditto.
	16	—	—	—	30,188	78,0	15, 5	31	12, 4	Ditto.
	1	1	M	5	30,188	75,5	13, 0	31	12, 4	Ditto.
	17	2	E	8	30,182	76,0	14, 0	31,75	12, 7	Ditto.
	18	2	—	—	30,092	77,8	15	30,75	12, 3	Ditto.
	1	1	M	5	30,165	73,5	14, 5	31, 0	12, 4	Ditto.
March	2	2	E	8	30,125	81,5	15, 5	30, 5	12, 2	Ditto.
	3	—	—	—	30,110	79,2	17, 5	30, 5	12, 2	Ditto.
	9	—	—	—	30,124	81,0	14	31, 0	12, 4	Cloudy and lightning.
	27	1	—	—	30,085	83,0	18	30, 0	12, 2	Cloudy.
Mean	—	—	—	—	30,111	79,3	11,85	—	12,313	—

TABLE VIII.

The wind having been south-easterly, mean of the observations of three days.

Month.	No. of Observations.	Mean height of			Number of		Weather.
		Barometer.	Therm.	Hygrom.	Beats.	Seconds.	
		Inches.		Dry.		"	
	6	29,925	83,9	11, 3	30, 0	12, 0	
	6	29,927	85,0	15, 3	30,65	12, 26	
	6	29,957	85,3	18, 3	30,15	12, 06	
	6	29,942	84,0	18, 3	30, 0	12, 0	
	6	29,955	84,4	17	30,35	12, 14	
	6	29,955	82,6	14	30, 5	12, 2	
	6	29,941	82,6	11, 3	30, 5	12, 2	
	6	30,008	83,2	14	31, 0	12, 4	
	6	30,086	84,5	17, 7	30,65	12, 26	
	6	30,025	77,5	9, 2	30, 3	12, 12	
	6	30,155	78,4	14	30, 9	12, 36	
	6	30,120	79,8	15, 8	31,05	12, 42	
	6	30,090	81,0	14, 3	31, 2	12, 04	
	6	30,065	80,3	17, 2	30, 9	12, 36	
	6	30,127	80,6	19, 2	31, 0	12, 4	
	6	30,043	81,5	11, 3	30,75	12, 3	
	6	30,055	82,3	12, 7	30, 7	12, 28	
	6	29,990	82,5	11, 8	31, 1	12, 44	
	4	30,084	83,5	15	30,37	12, 14	
Mean - -		30,023	82,3	14,60		12,231	

TABLE IX.

The wind having been north-easterly, mean of the observations of three days.

Month.	No. of Observations.	Mean height of			Number of		Weather.
		Barometer.	Therm.	Hygrom.	Beats.	Seconds.	
1820.		Inches.		Dry.			
Oct.	6	30,132	81,3	12, 0	30,75	12, 3	Clear.
Nov.	6	30,181	80,7	11, 8	30, 5	12, 2	Ditto.
	6	30,178	79,4	7, 3	30, 7	12, 28	Cloudy.
	6	30,140	81,0	8, 7	30,15	12, 06	Ditto.
	6	30,105	78,7	7, 8	30, 6	12, 24	Clear.
	6	30,110	79,1	11, 3	30,75	12, 30	Ditto.
Dec.	6	30,170	78,5	14, 5	31, 1	12, 44	Ditto.
	6	30,119	78,1	1, 2	30,75	12, 3	Ditto.
	6	30,117	76,4	8, 0	31, 2	12, 48	Ditto.
	6	30,112	79,3	5, 0	30, 6	12, 24	Ditto.
	6	30,076	78,0	0, 5	31,05	12, 4	Ditto.
	6	30,083	78,9	2, 0	31, 0	12, 4	Cloudy.
Jan.	6	30,105	76,1	Damp 4, 8	31,35	12, 54	Clear.
	6	30,183	76,8	Dry. 2, 5	31, 1	12, 44	Ditto.
	6	30,148	77,9	8, 8	31, 0	12, 4	Cloudy.
	6	30,119	78,5	10, 0	30,85	12, 34	Clear.
Feb.	6	30,103	77,8	11, 2	31,15	12, 46	Ditto.
	6	30,180	78,2	14, 2	30,75	12, 3	Ditto.
Mean	-	30,131	78,6	7,33		12,340	

TABLE X.

The wind having been SW by W, and NW, mean of the observations of three days.

Month.	No. of Observations.	Mean height of			Number of		Weather.
		Barometer.	Therm.	Hygrom.	Beats.	Seconds.	
1820.		Inches.	°	Dry.		"	
August.	6	29,972	81, 0	9, 7	31, 5	12,60	Cloudy and lightning.
	6	29,974	82, 0	8, 0	30,85	12,34	Mostly hazy.
	6	29,915	83, 2	13, 3	31,15	12,46	Ditto, ditto.
	6	29,868	85, 4	18, 0	31, 0	12, 4	Cloudy.
Sep. and Nov.	6	30,074	81, 8	16, 2	31, 0	12, 4	Mostly cloudy.
Dec. and Mar.	6	30,076	77, 7	3, 3	31, 4	12,56	Hazy.
Mean		29,979	81,85	11,41		12, 46	

TABLE XI.

Mean motion of sound for each month, according to the experiments with the Mount gun.

Month.	Mean height of			Velocity in a second.
	Barometer.	Therm.	Hygrom.	
	Inches.	°	Dry.	Feet.
January.	30,124	79,05	6, 2	1101
February	30,126	78,84	14,70	1117
March.	30,072	82,30	15,22	1134
April.	30,031	85,79	17,23	1145
May.	29,892	88,11	19,92	1151
June.	29,907	87,10	24,77	1157
July.	29,914	86,65	27,85	1164
August.	29,931	85,02	21,54	1163
September.	29,963	84,49	18,97	1152
October.	30,058	84,33	18,23	1128
November.	30,125	81,35	8,18	1101
December.	30,087	79,37	1,43	1099